

FIG. 1

10040851 322801

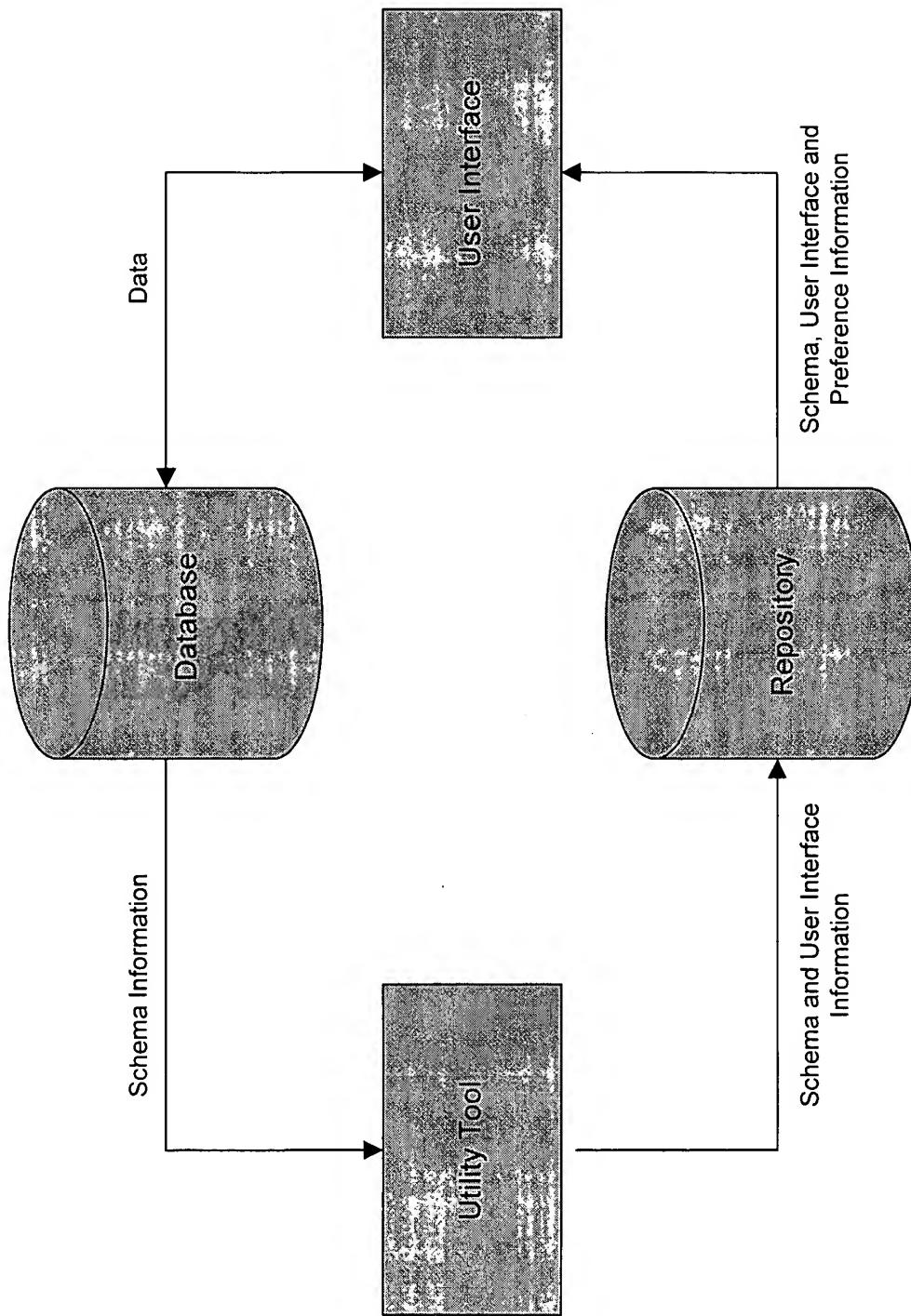


FIG. 2

Relational Database Normalization

The First 4 Normal Forms

1st Normal Form

Practical Rule: Eliminate Repeating Groups: Make a separate table for each set of related attributes, and give each table a primary key.

Formal Definition: A relation is in first normal form (1NF) if and only if all underlying simple domains contain atomic values only.

2nd Normal Form

Practical Rule: Eliminate Redundant Data: If an attribute depends on only part of a multi-valued key, remove it to a separate table.

Formal Definition: A relation is in second normal form (2NF) if and only if it is in 1NF and every non-key attribute is fully dependent on the primary key.

3rd Normal Form

Practical Rule: Eliminate Fields Not Dependent On Key: If attributes do not contribute to a description of a key, remove them to a separate table.

Formal Definition: A relation is in third normal form (3NF) if and only if it is in 2NF and every non-key attribute is non-transitively dependent on the primary key.

4th Normal Form

Practical Rule: Isolate Independent Multiple Relationships: No table may contain two or more one-to-many or many-to-many relationships that are not directly related.

Formal Definition: A relation R is in fourth normal form (4NF) if and only if, whenever there exists a multi-valued dependency in the R, say B depends on A, then all attributes of R are also functionally dependent on A.

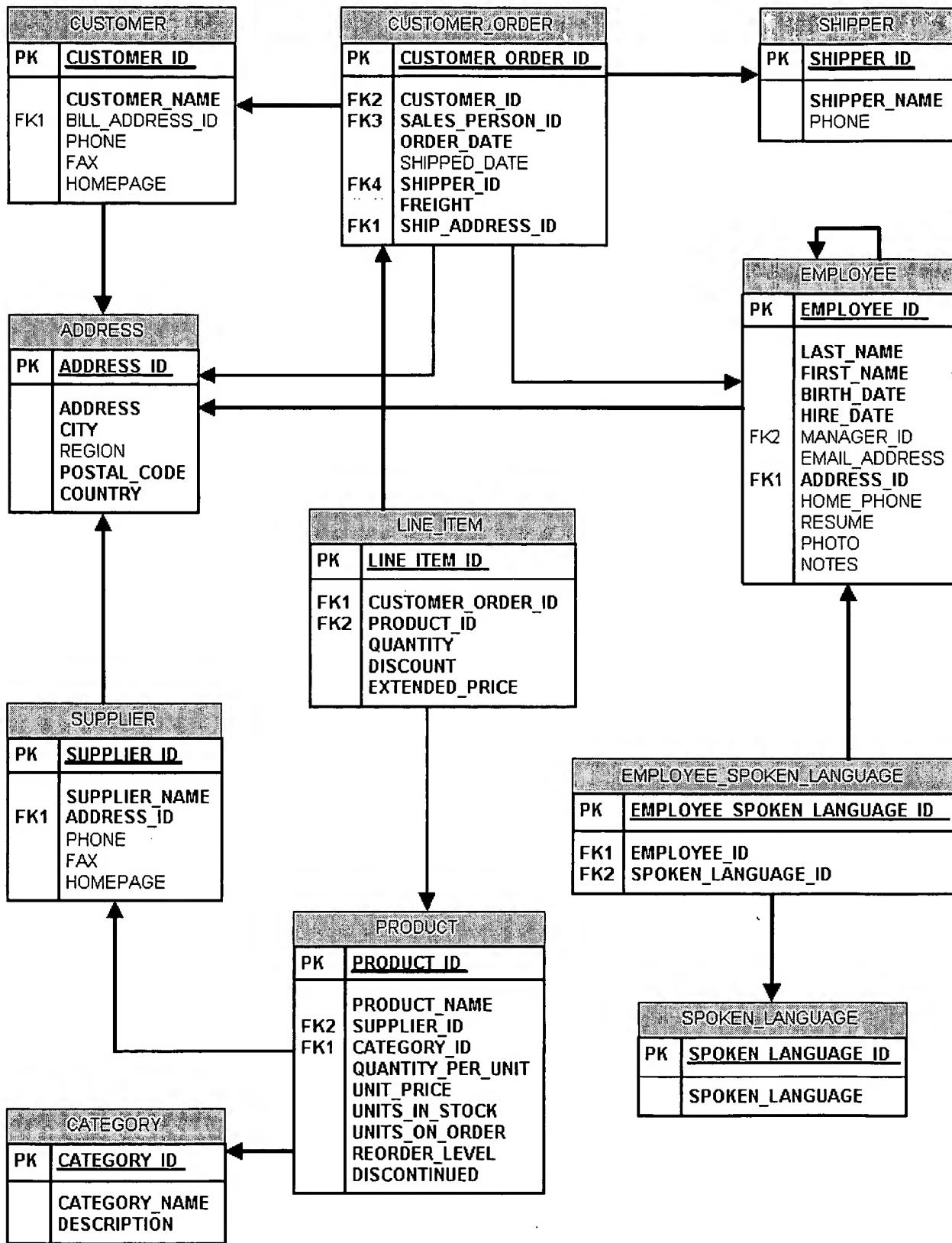


FIG. 4

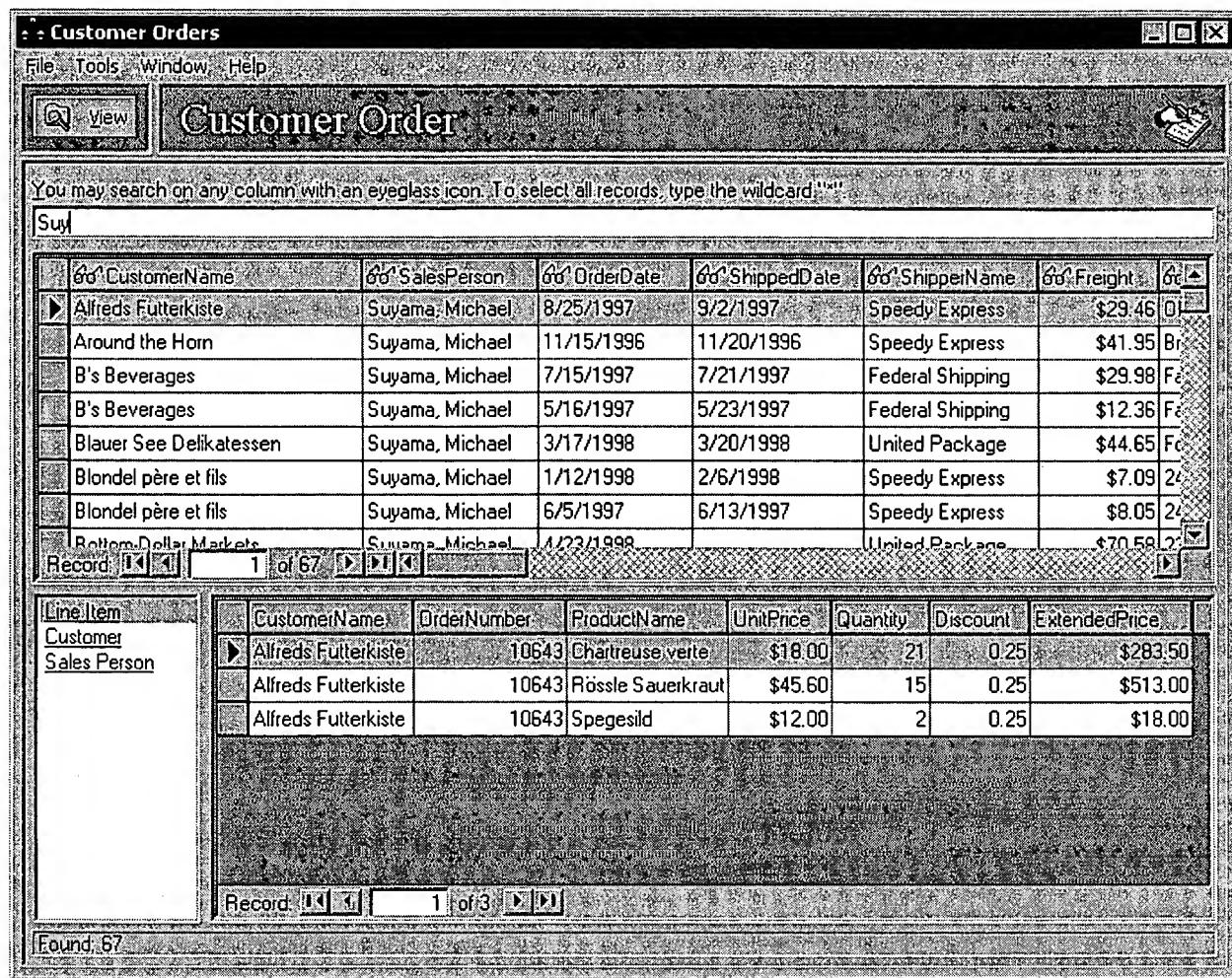


FIG. 5

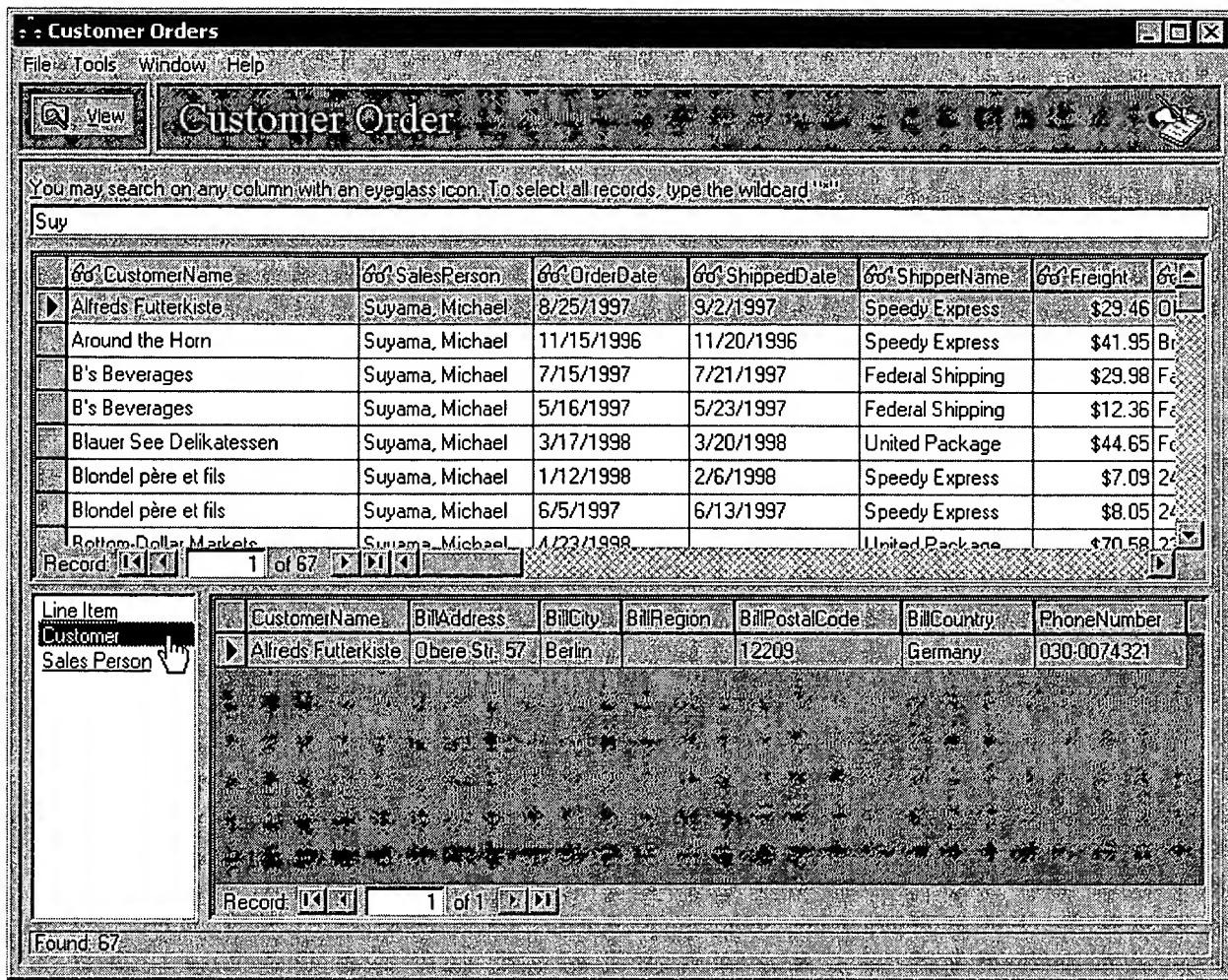


FIG. 6

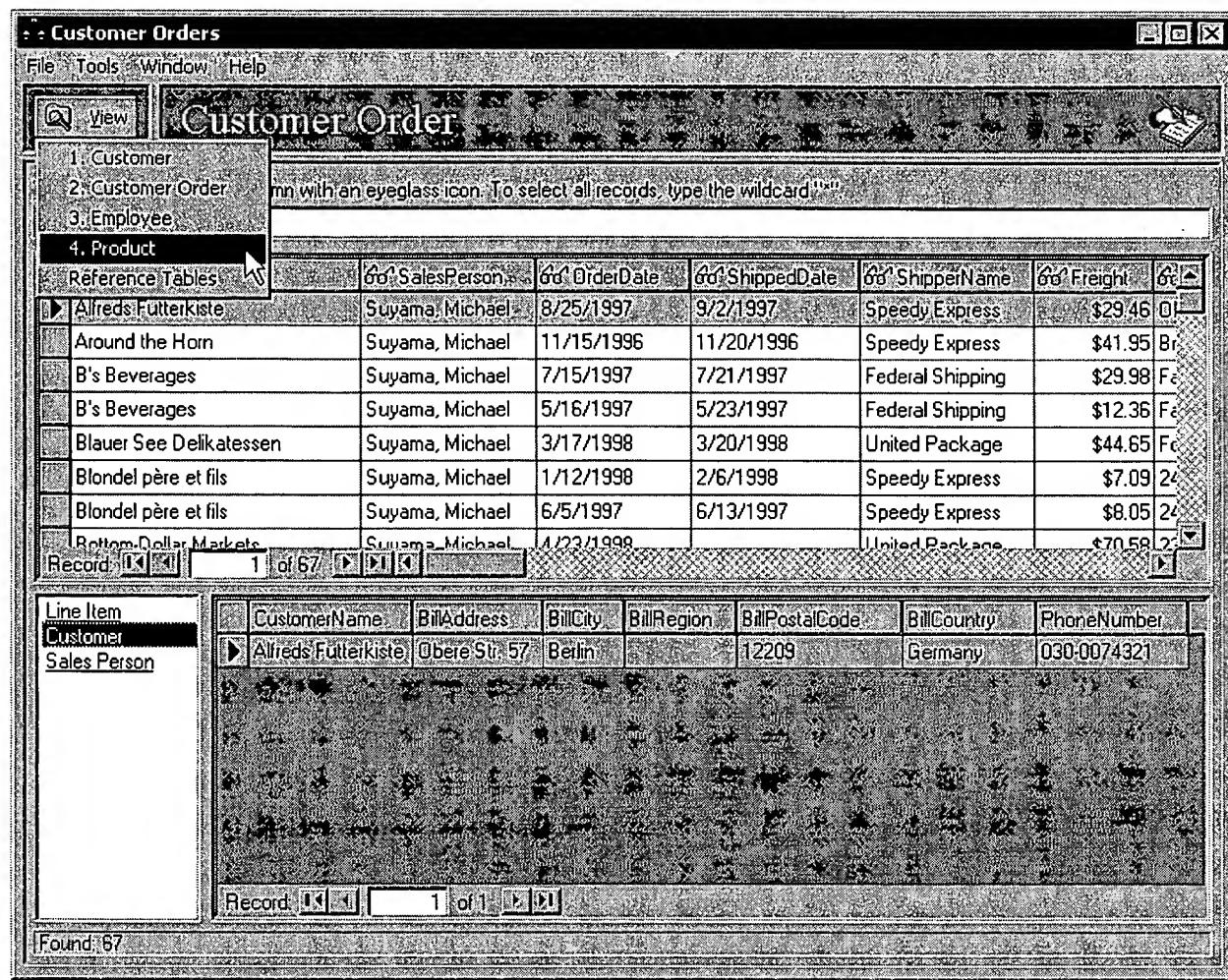


FIG. 7

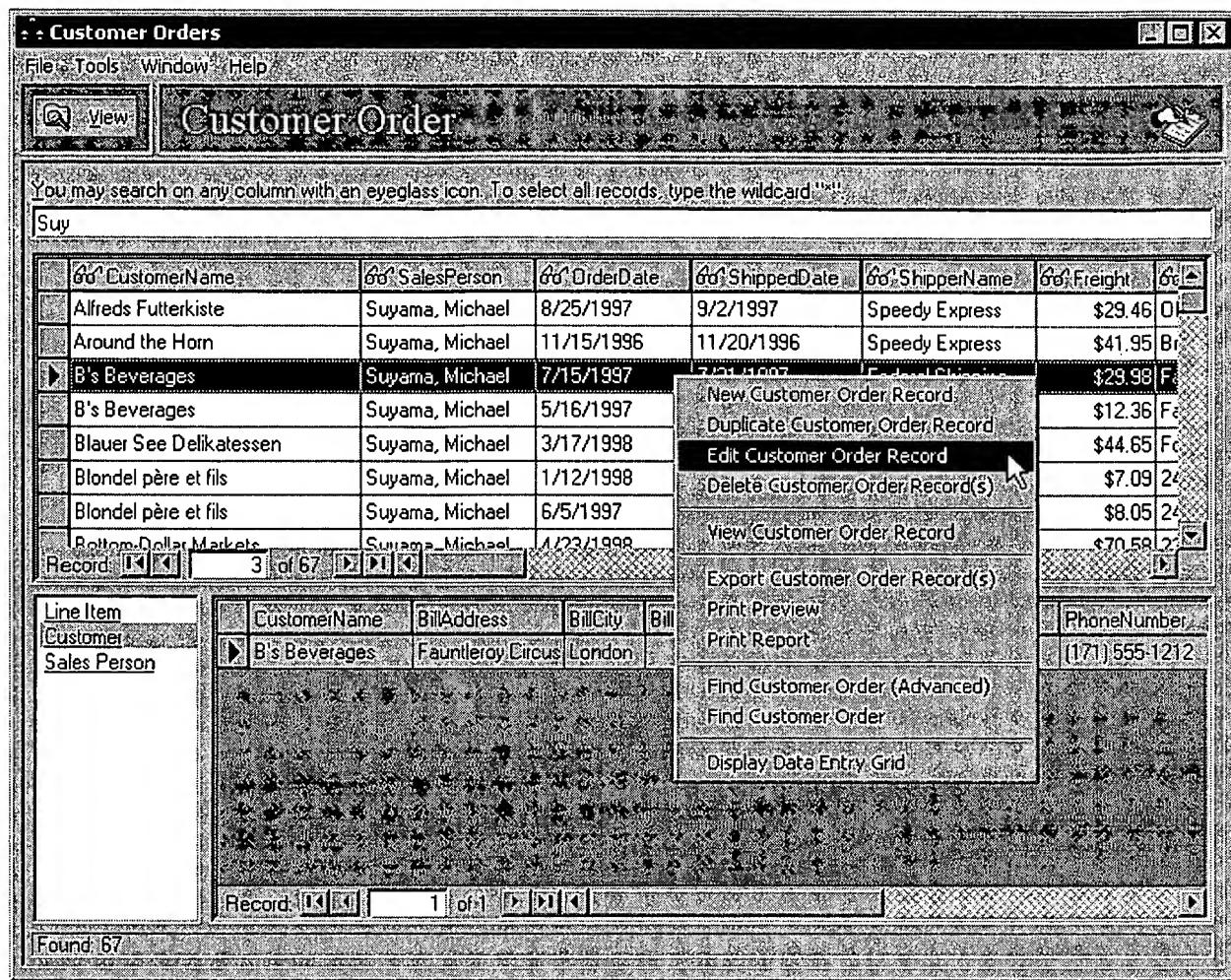


FIG. 8

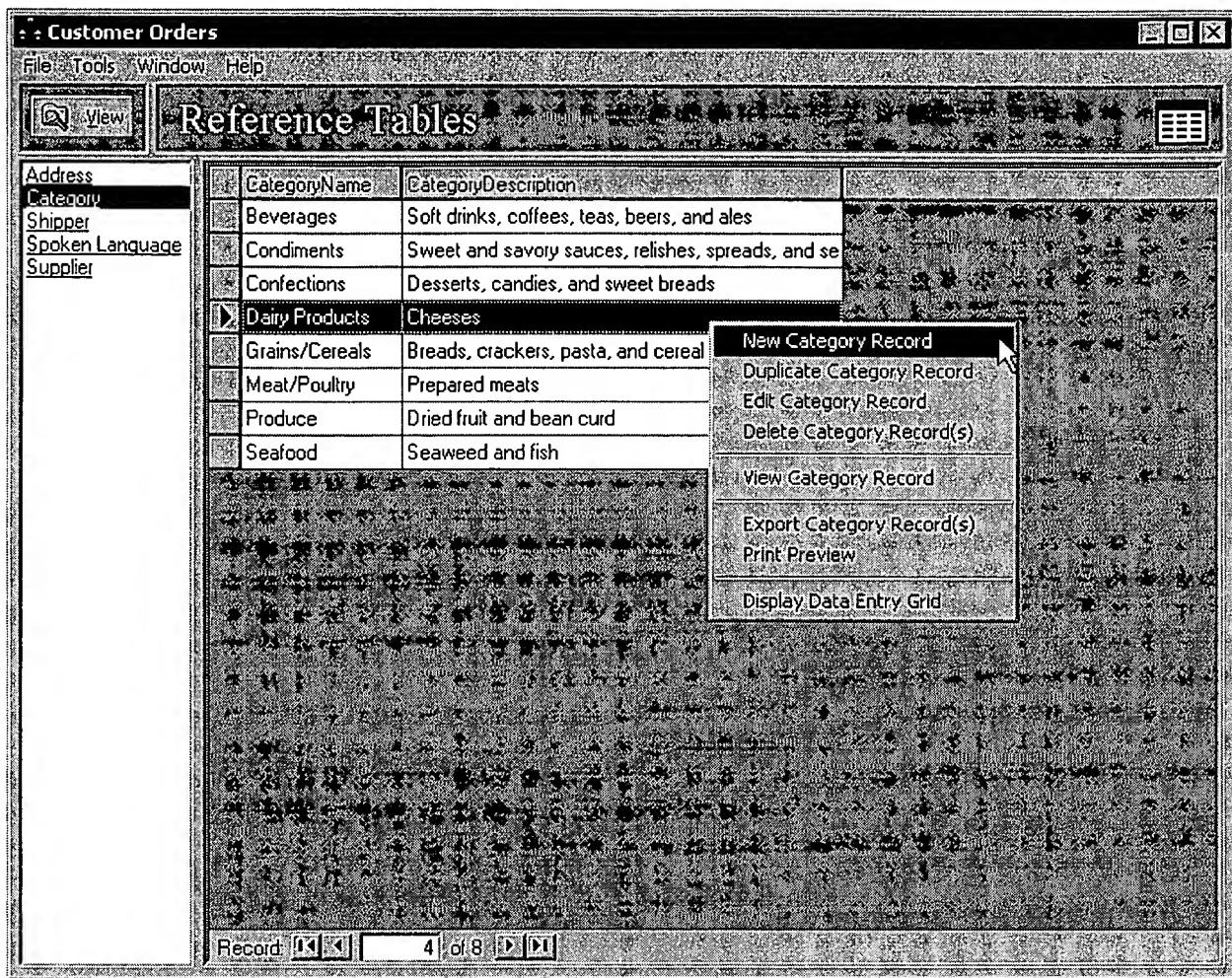


FIG. 9

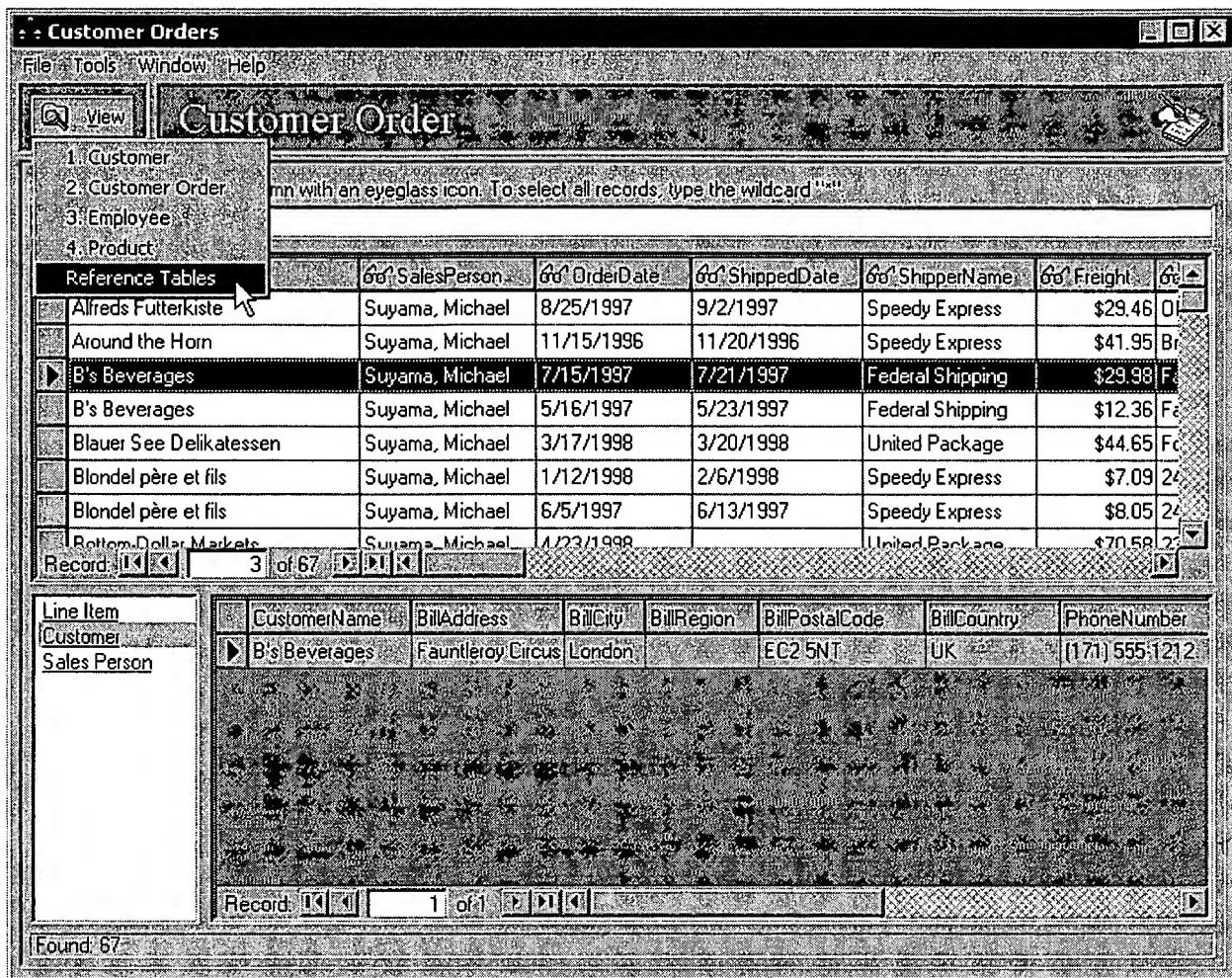


FIG. 10

10040354 - 122301

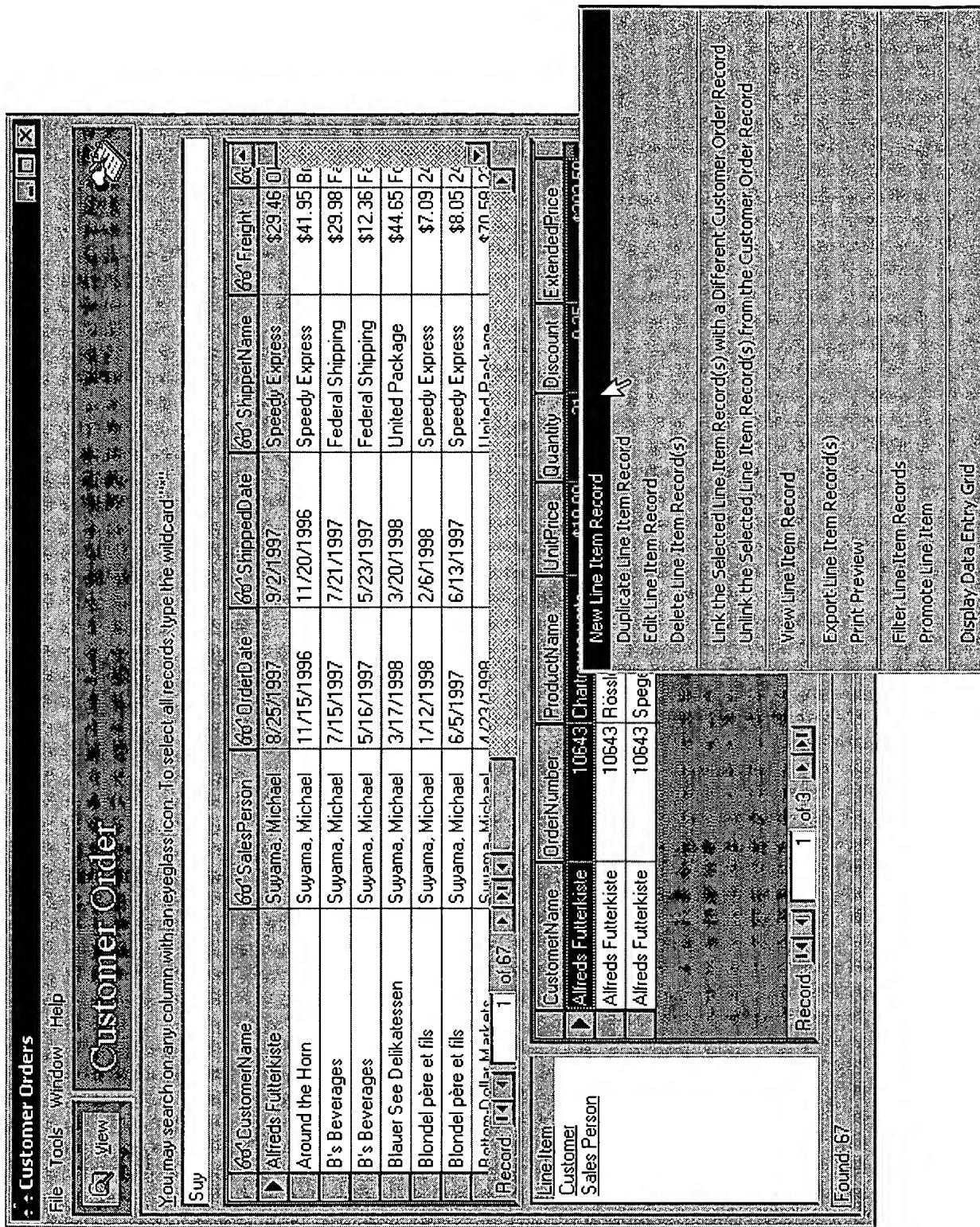


FIG. 11

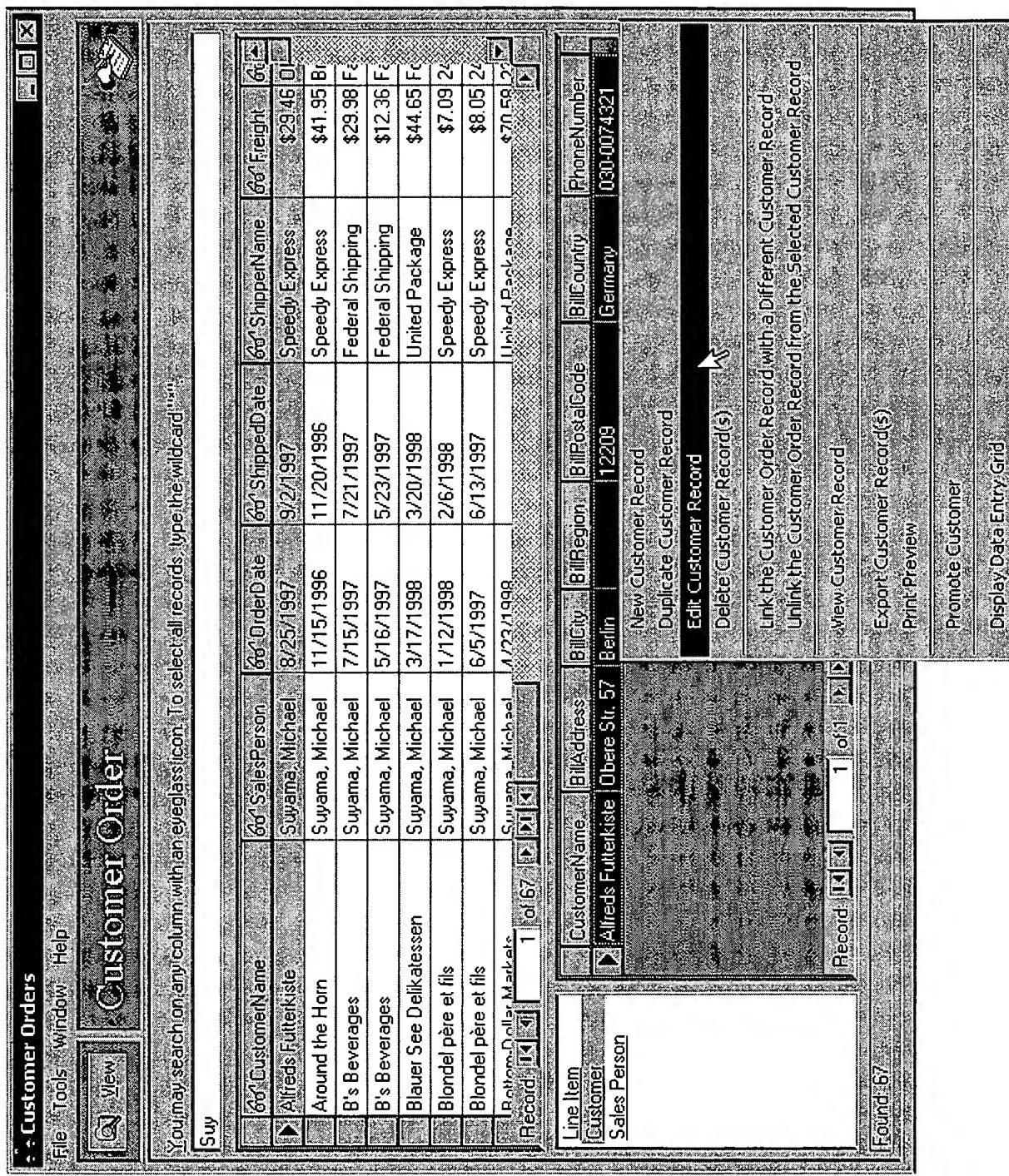


FIG. 12



FIG. 13

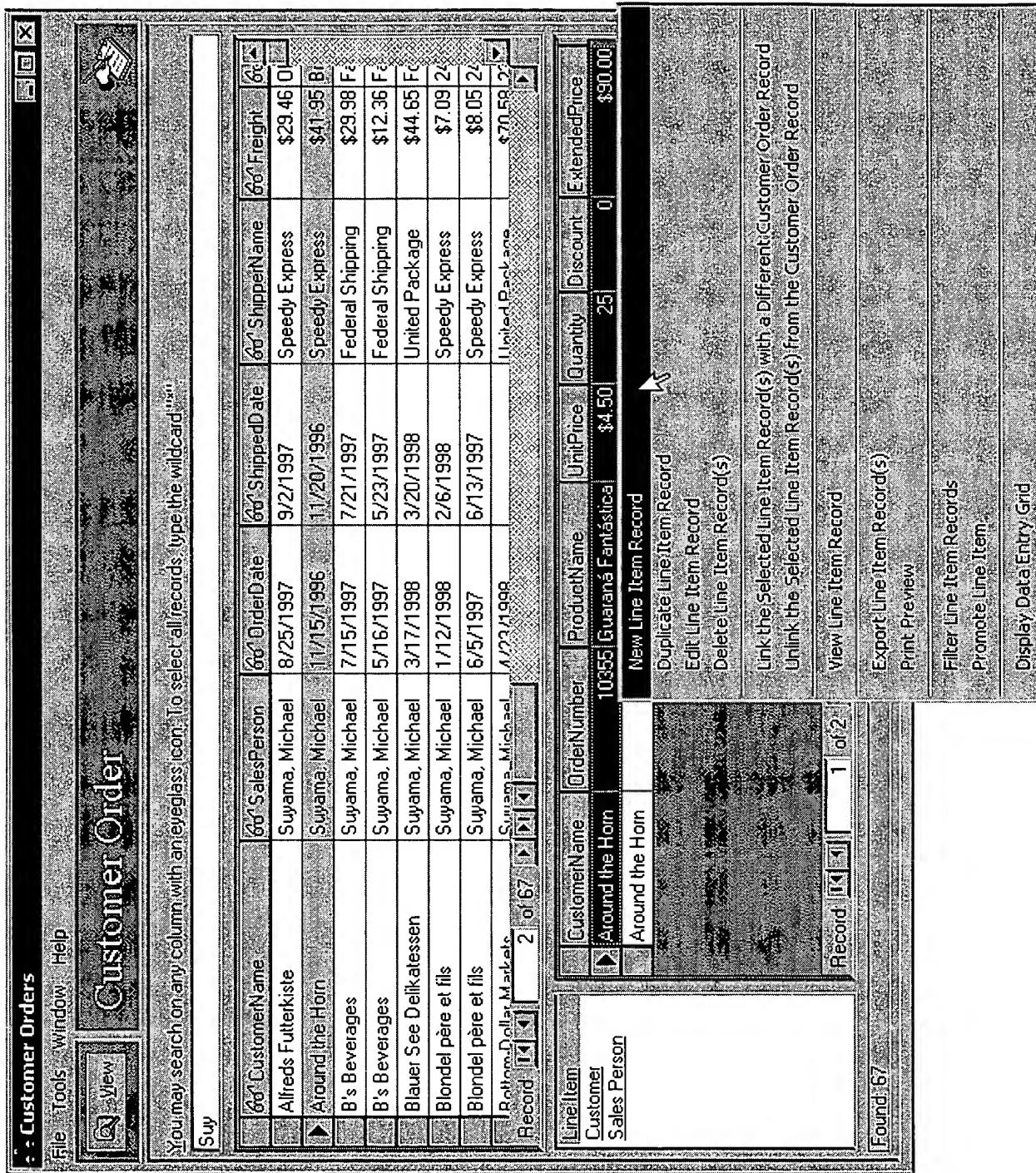


FIG. 14

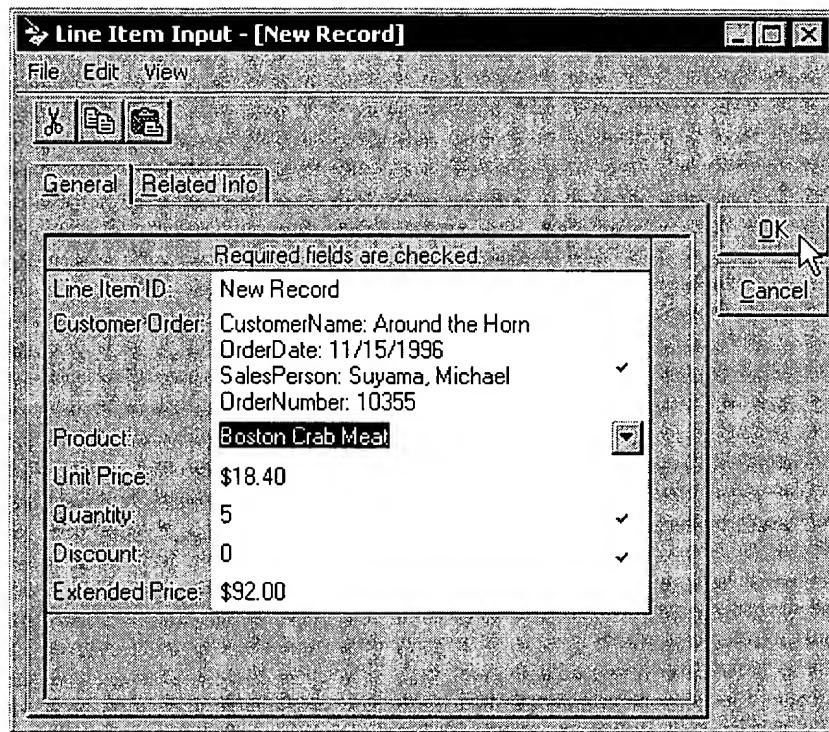


FIG. 15

10040351 - 122601

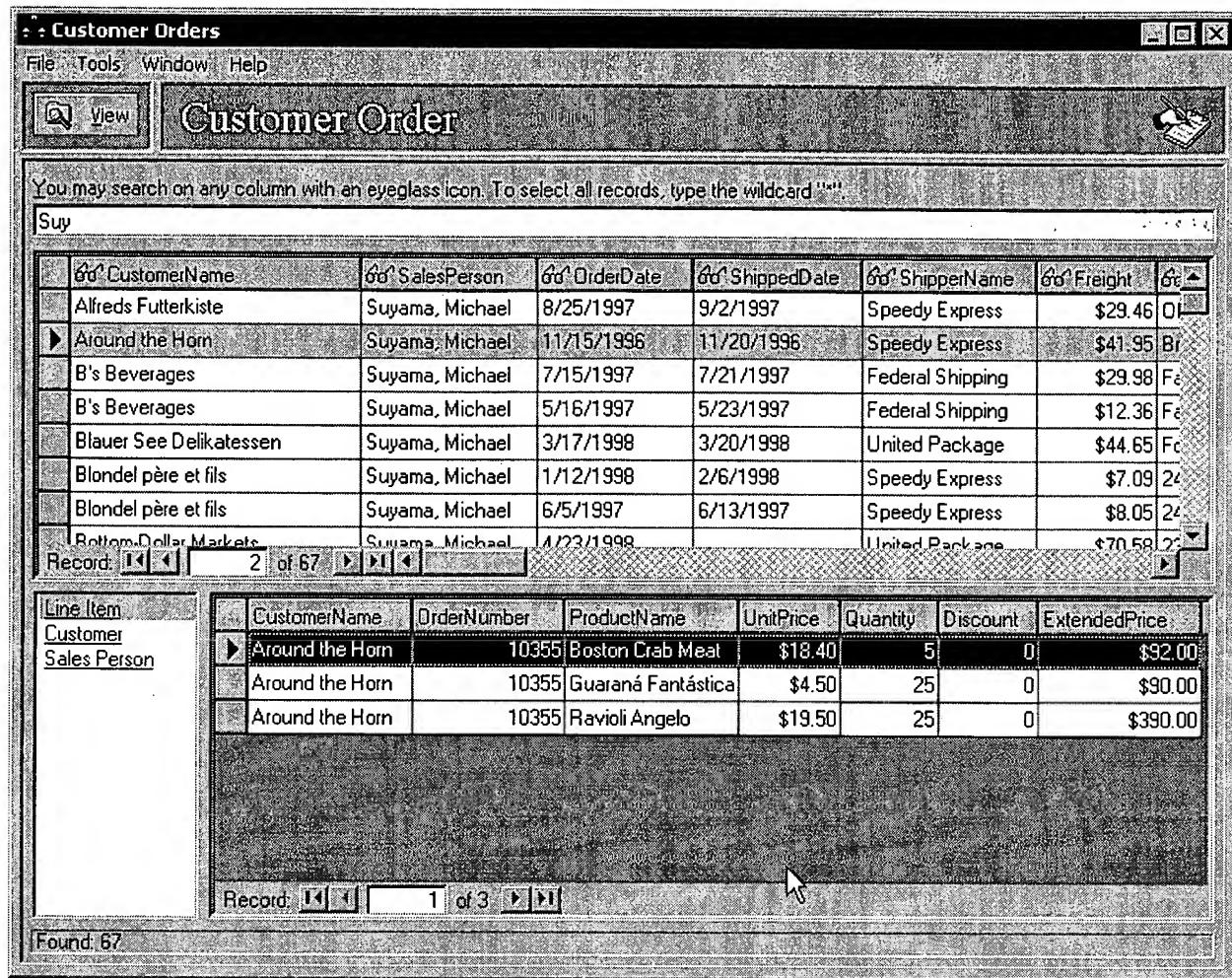


FIG. 16

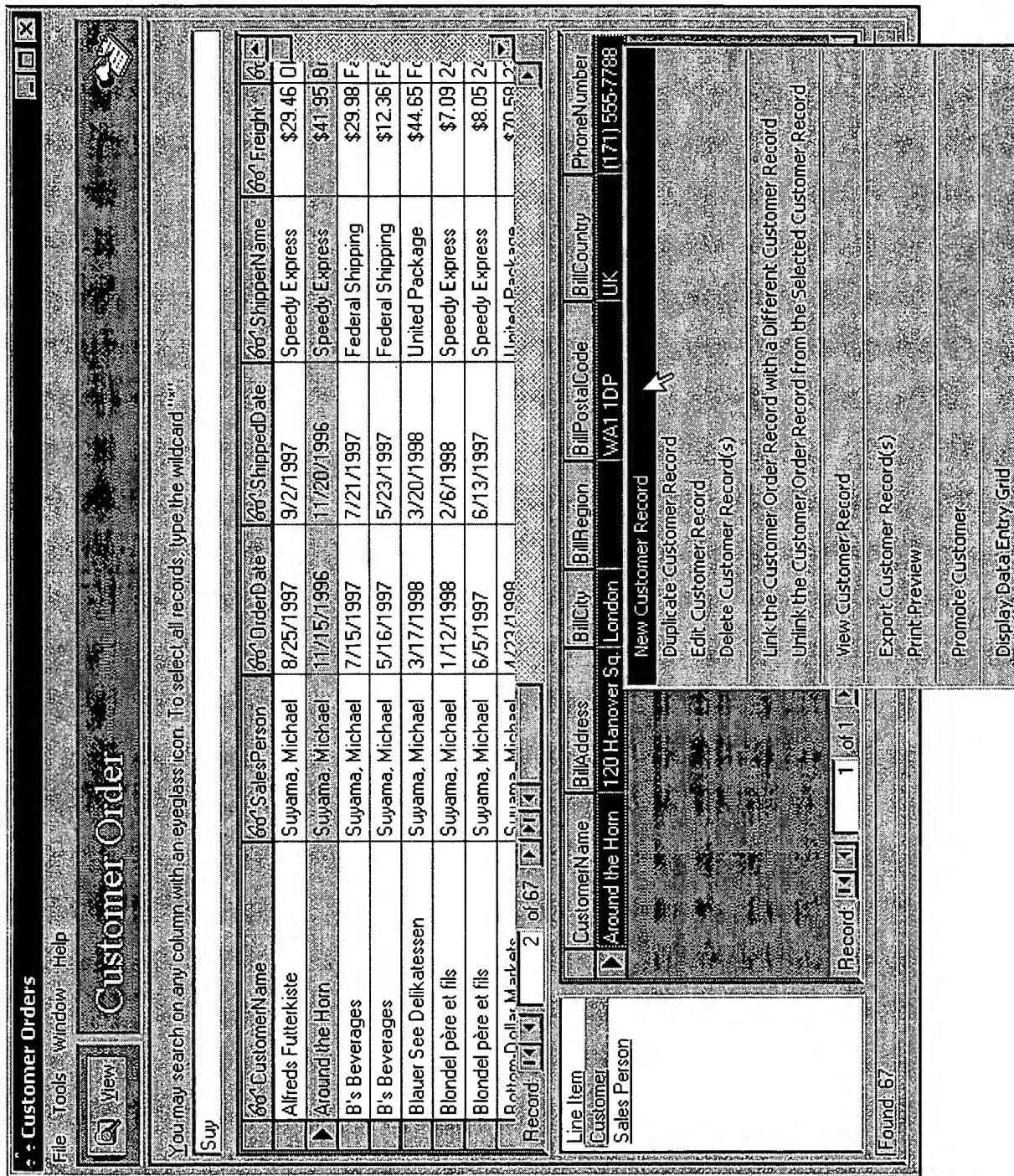


FIG. 17

10040851 122601

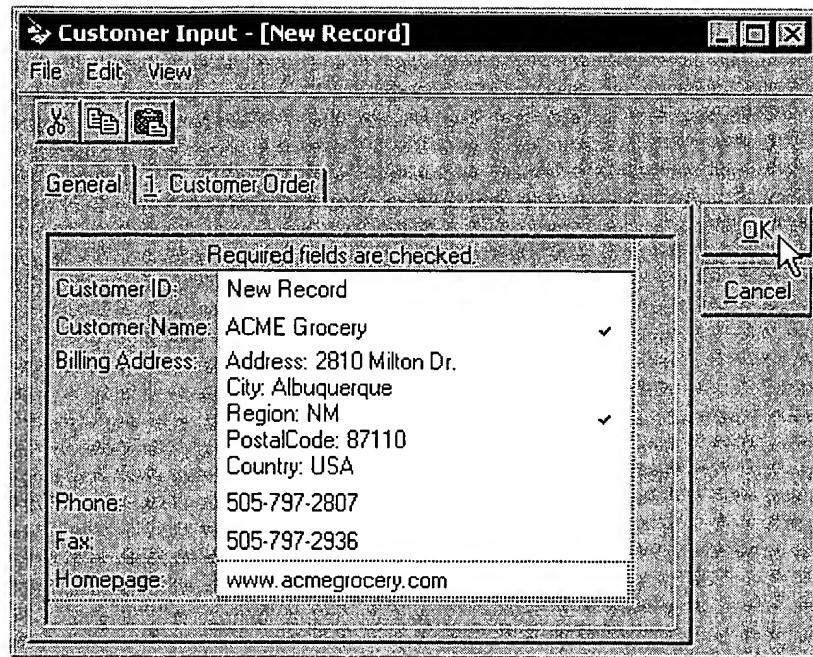


FIG. 18

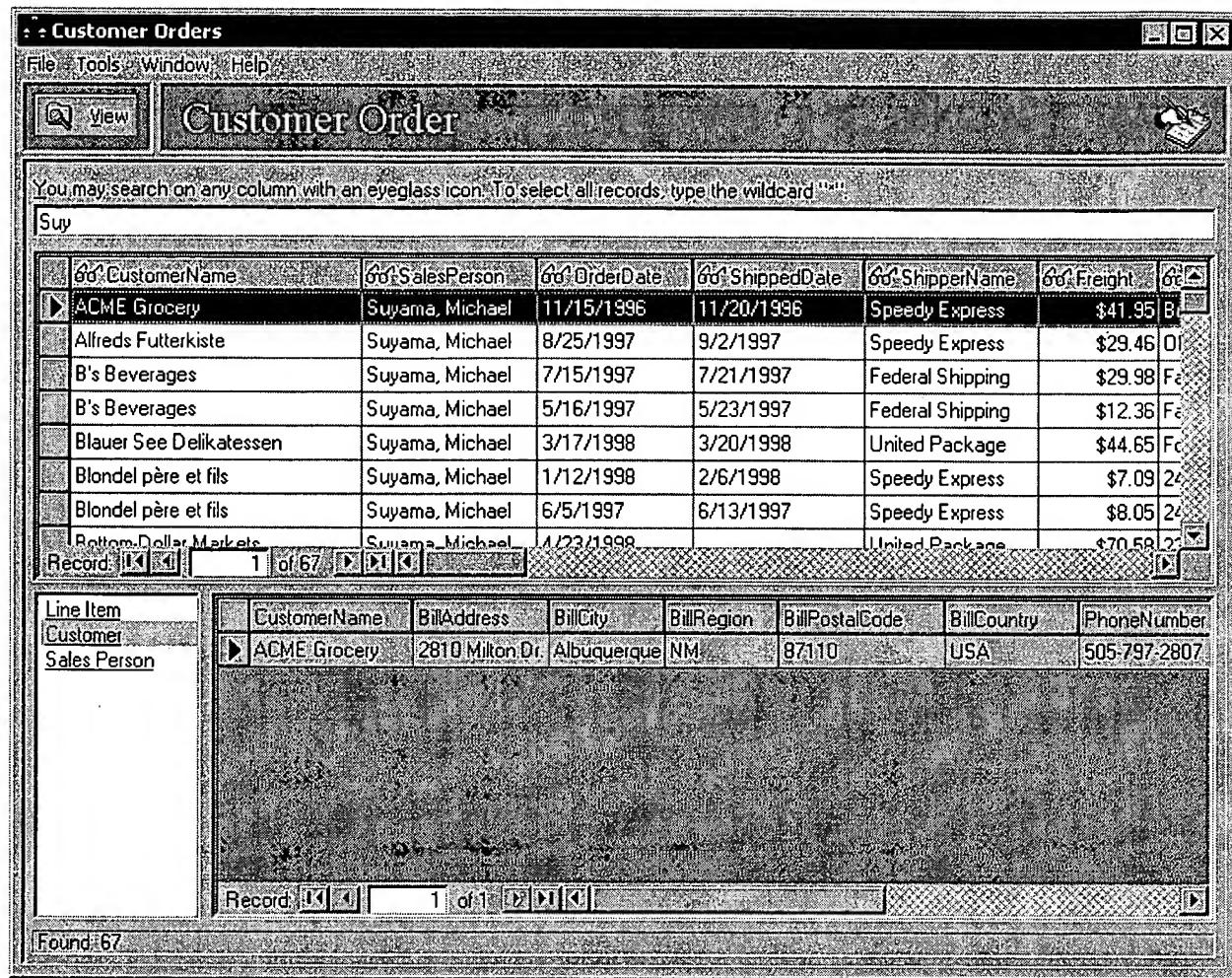


FIG. 19

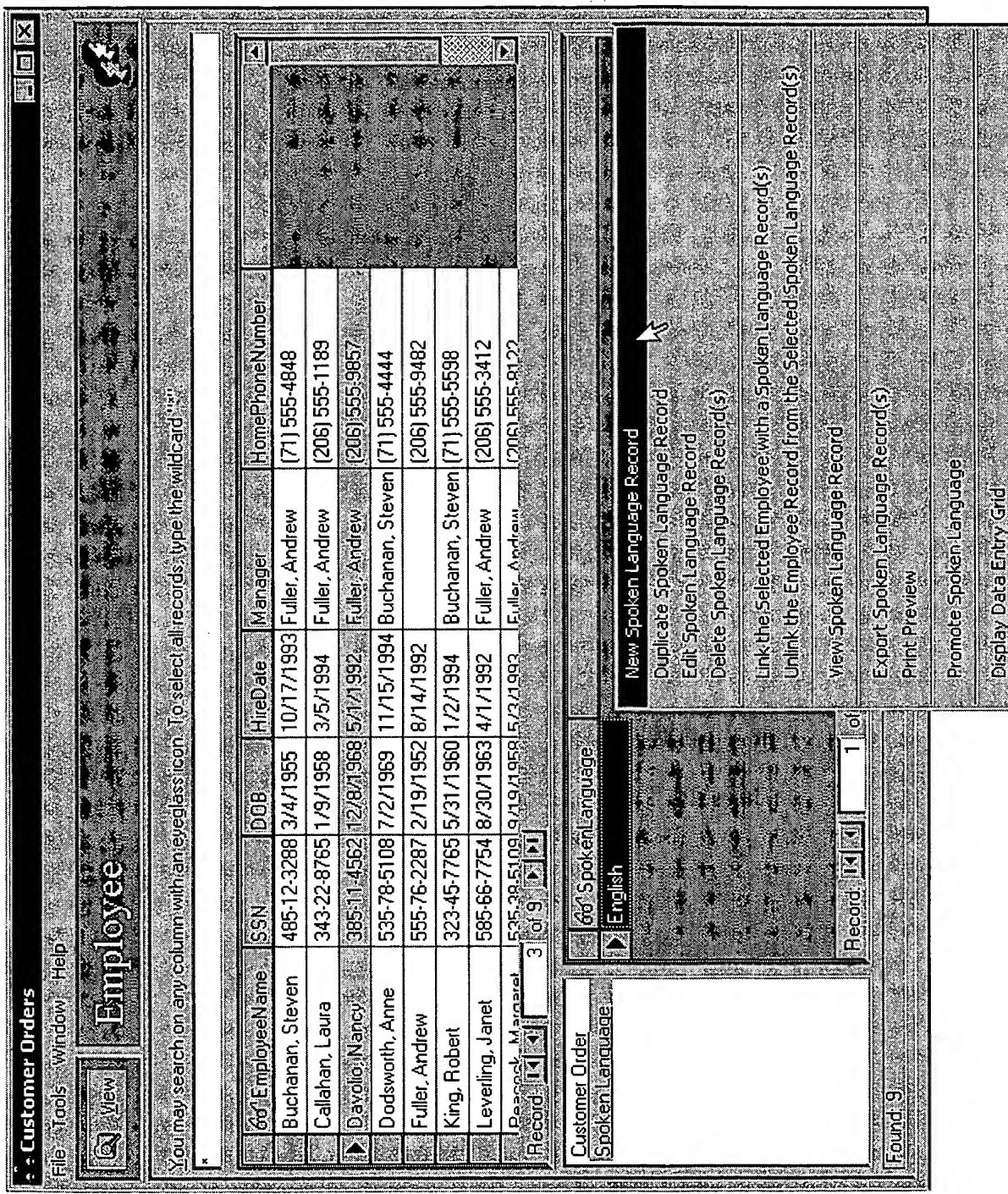


FIG. 20

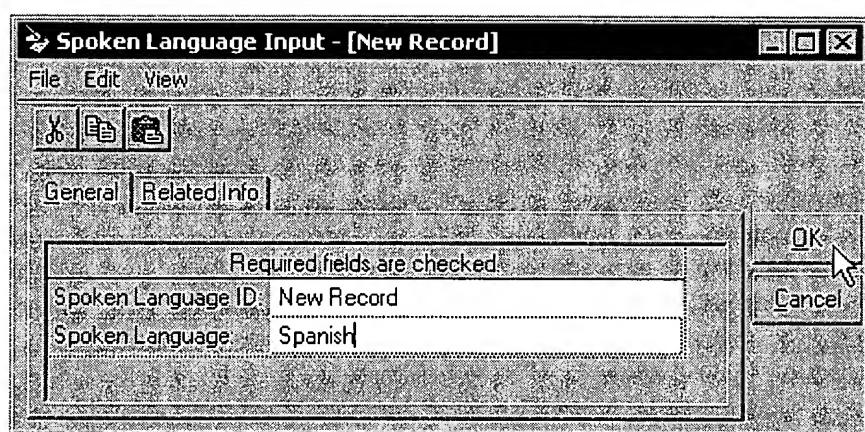


FIG. 21

10040851 • 122801

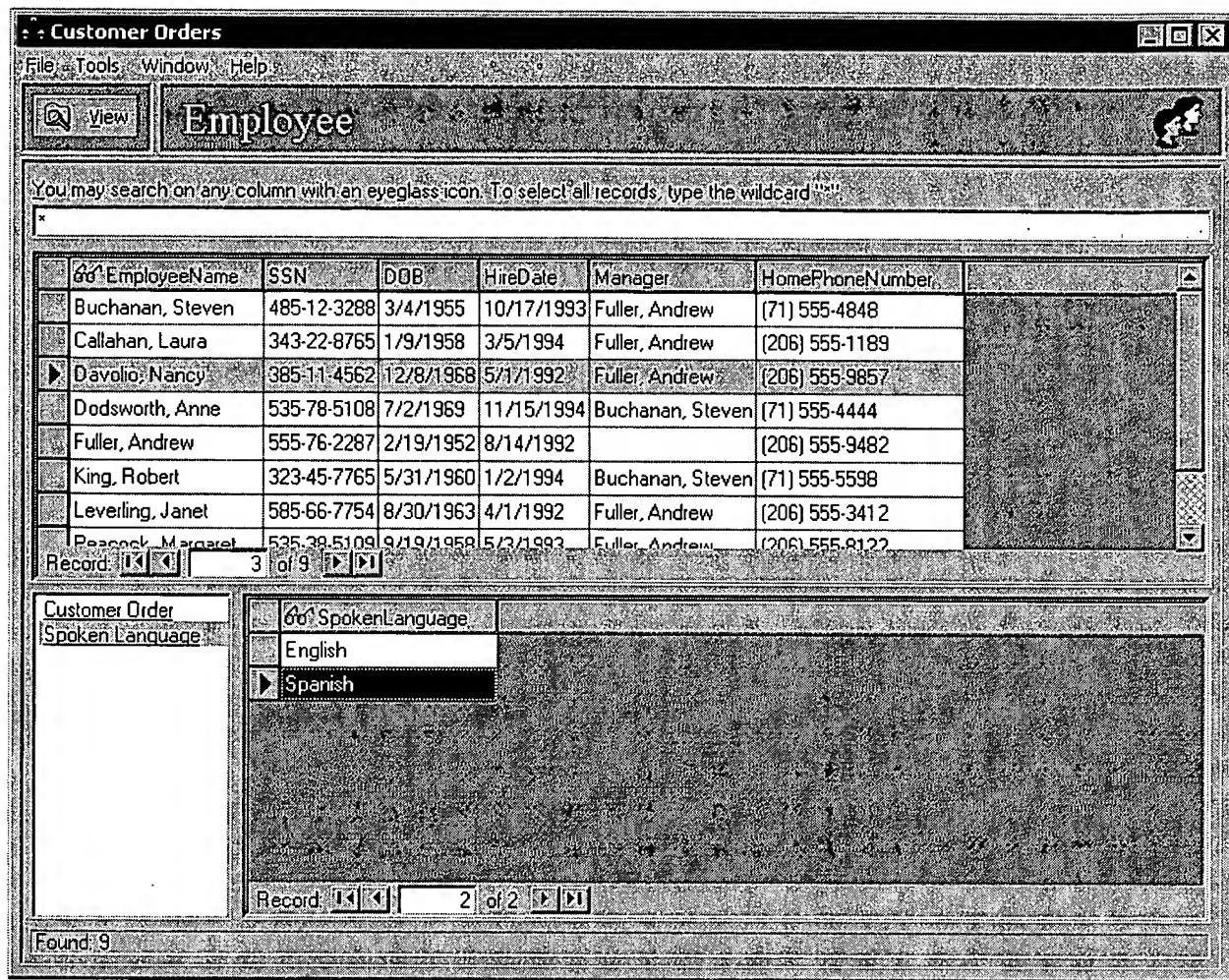


FIG. 22

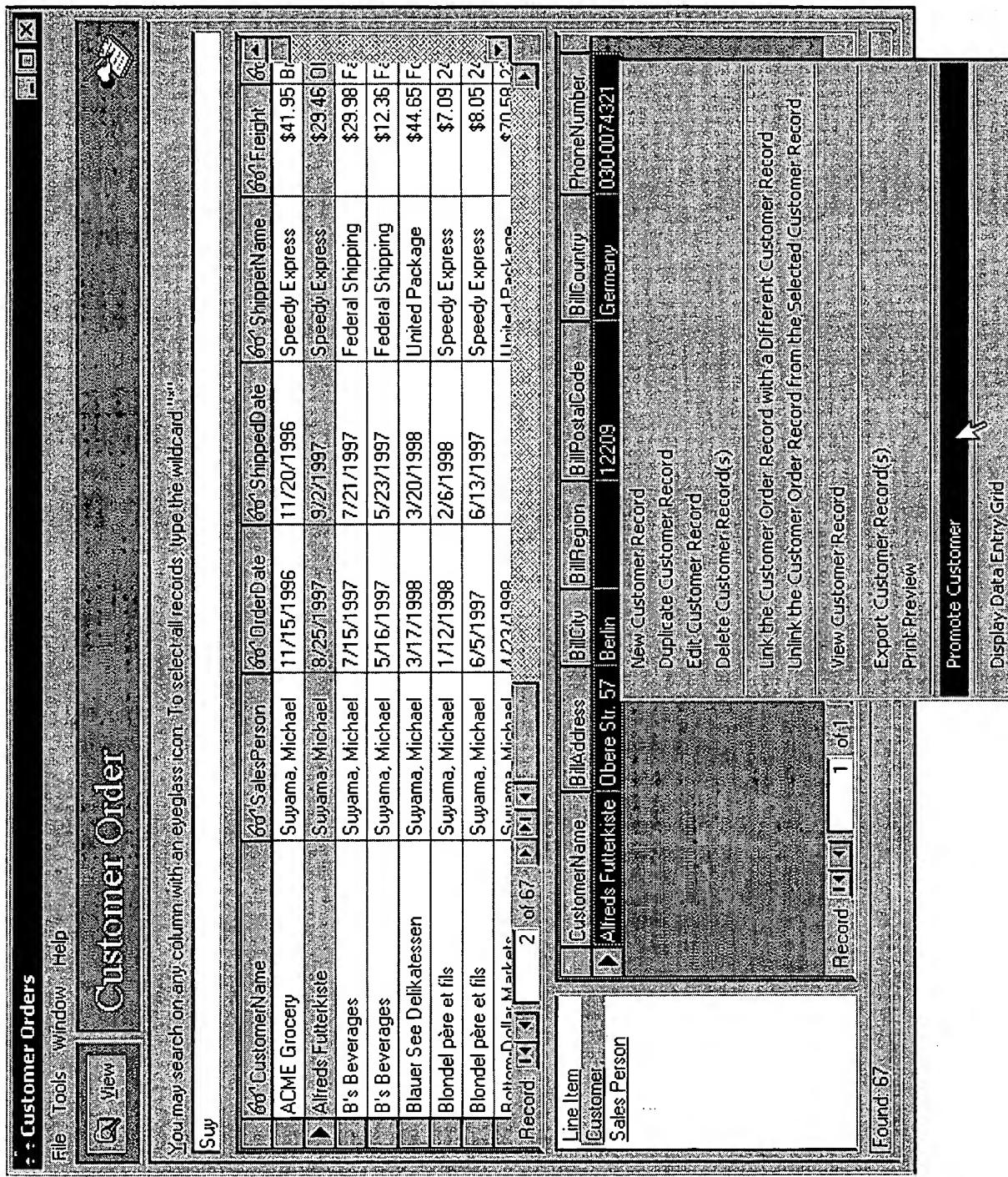


FIG. 23

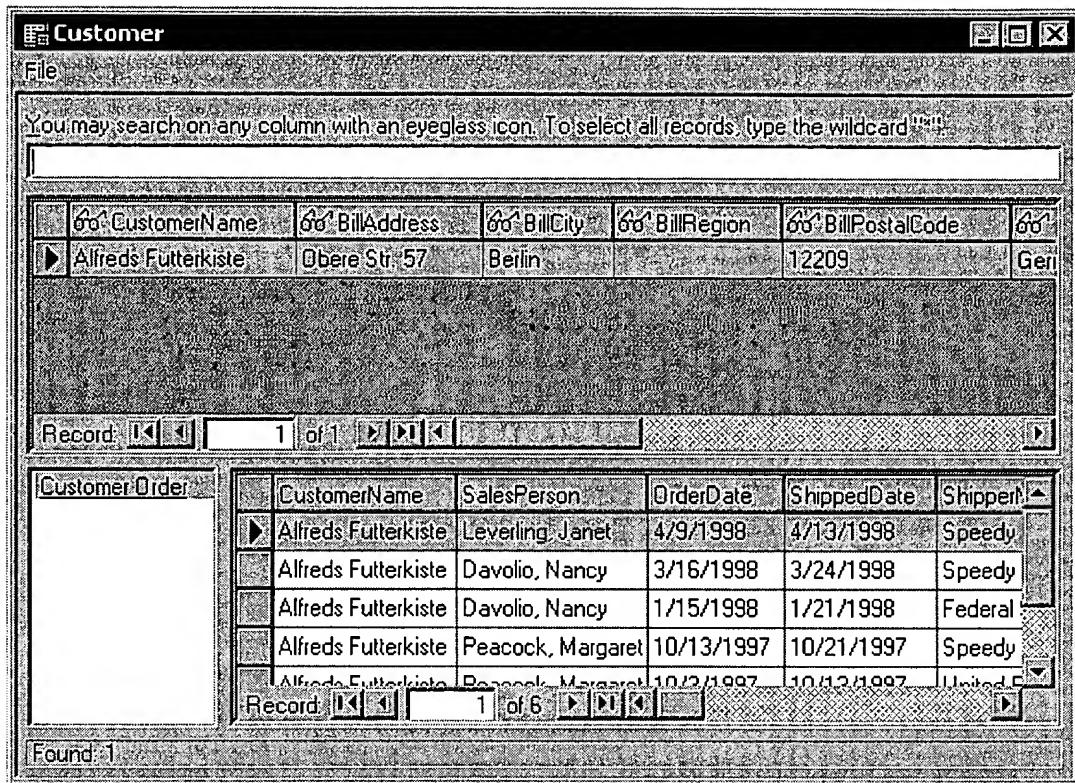


FIG. 24

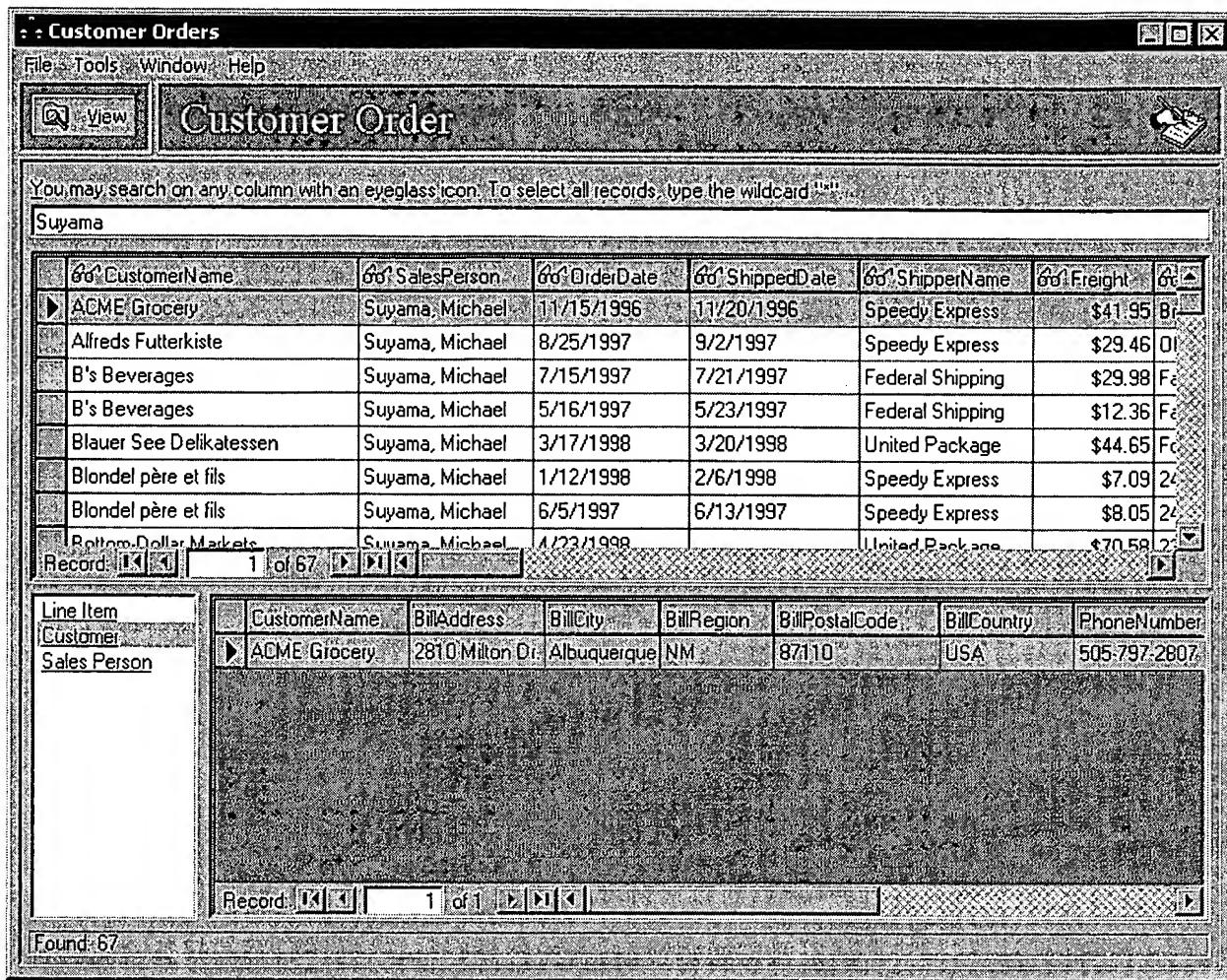


FIG. 25

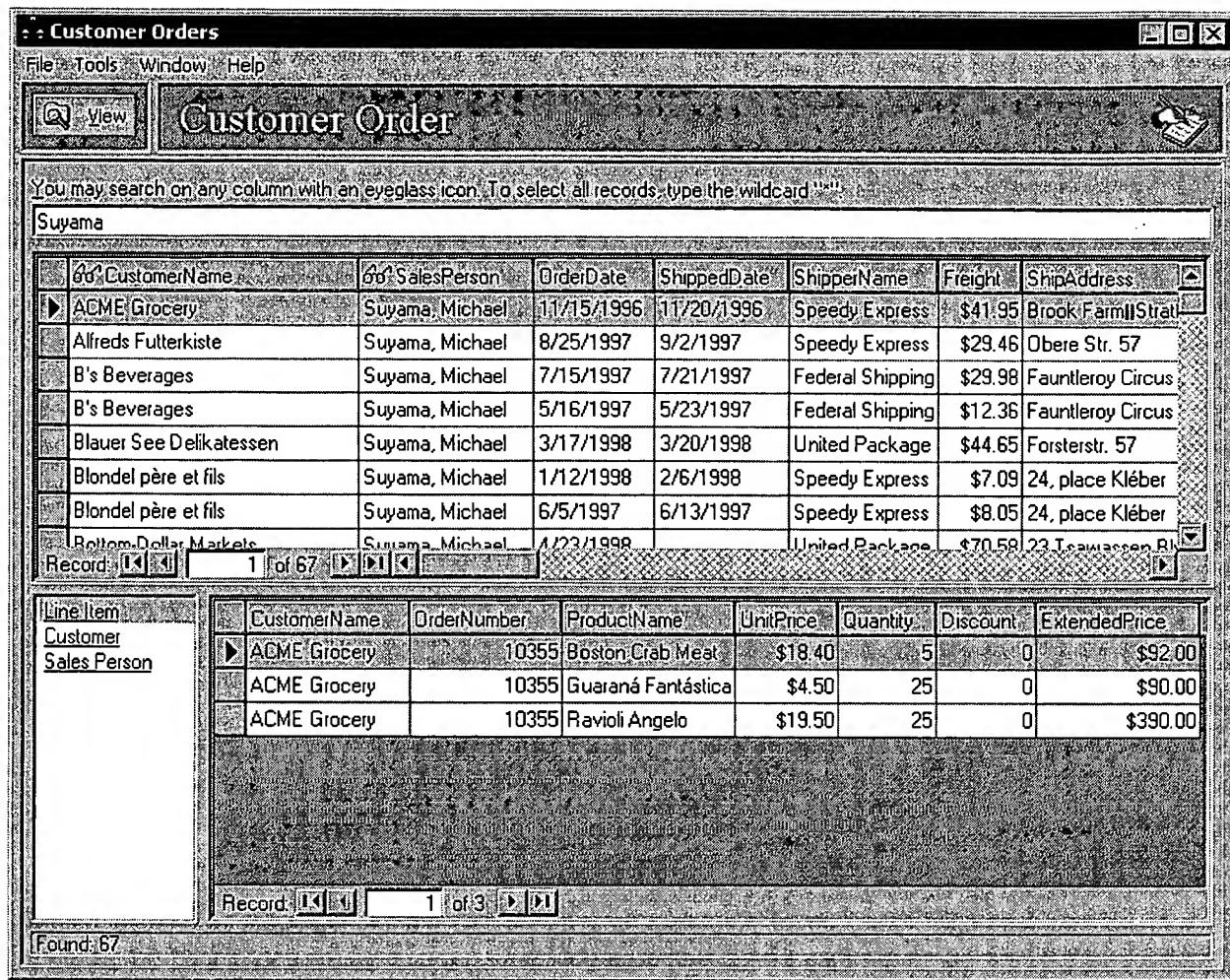


FIG. 26

1004080511 122801

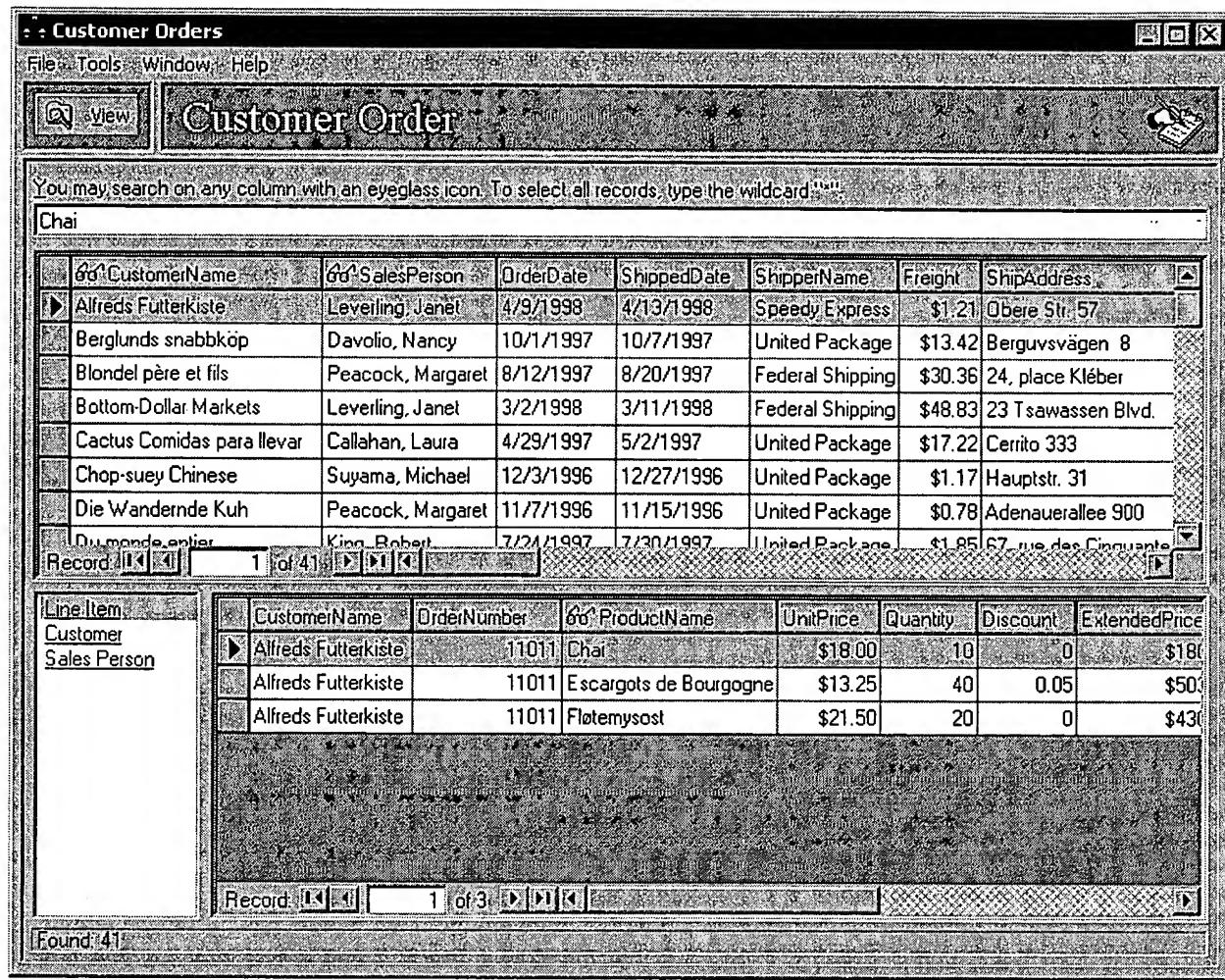


FIG. 27

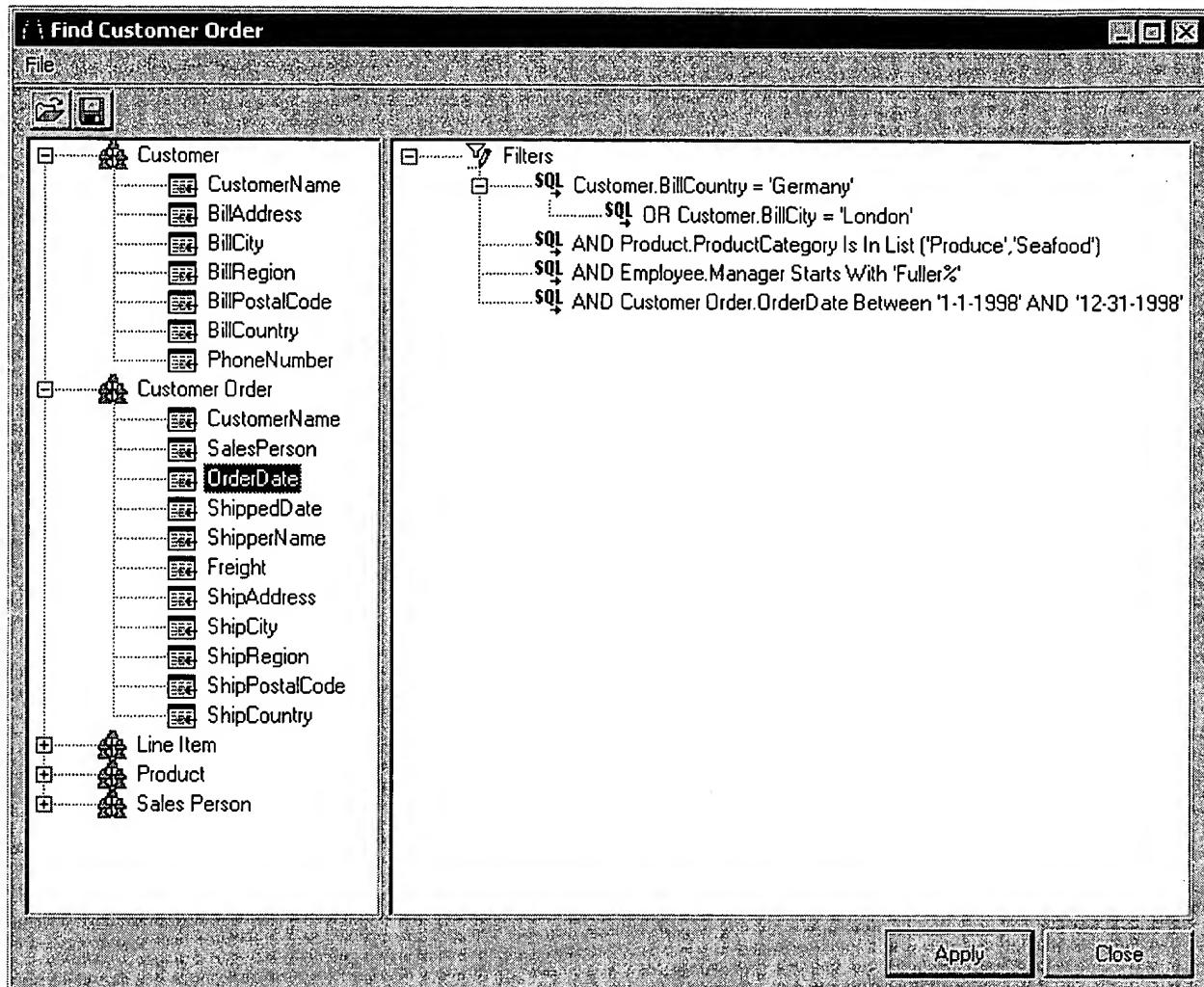


FIG. 28

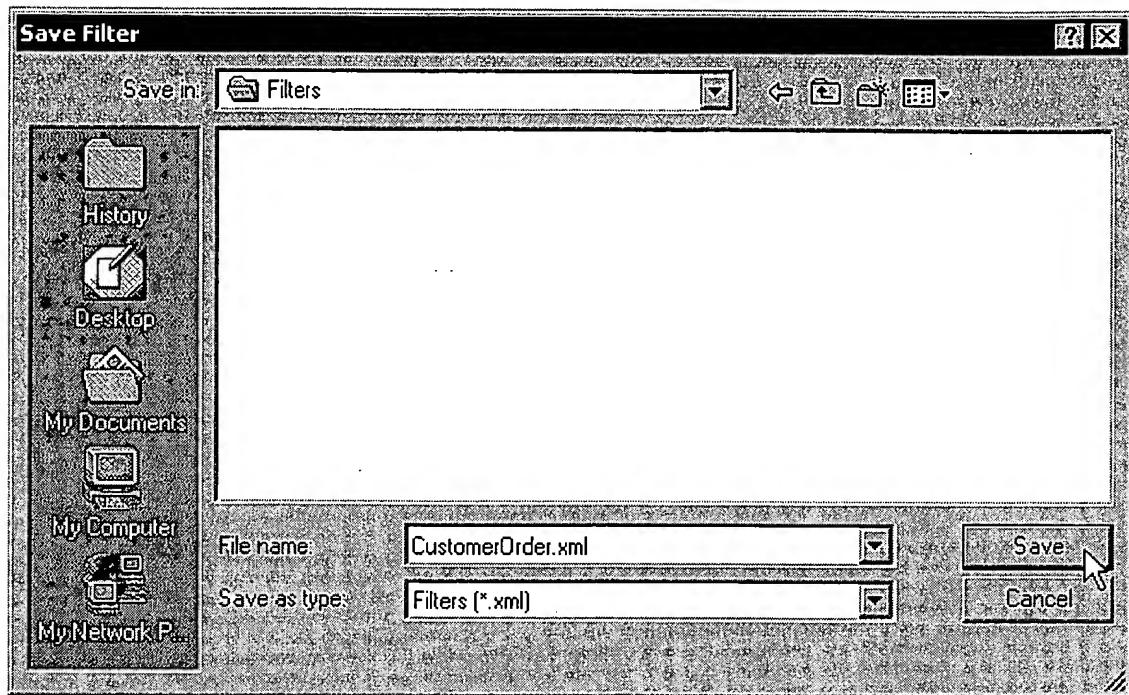


FIG. 29

10040541 11223031

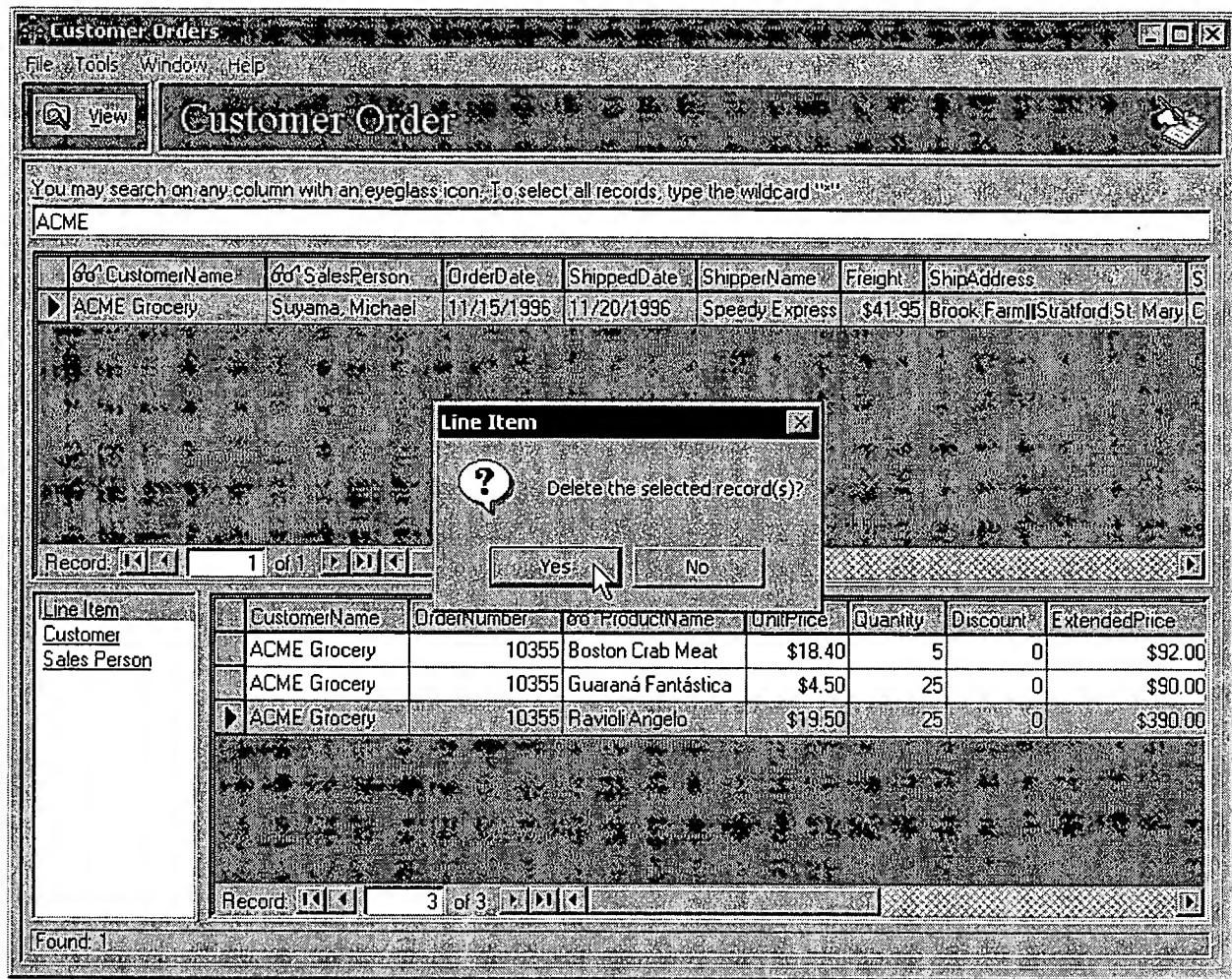


FIG. 30

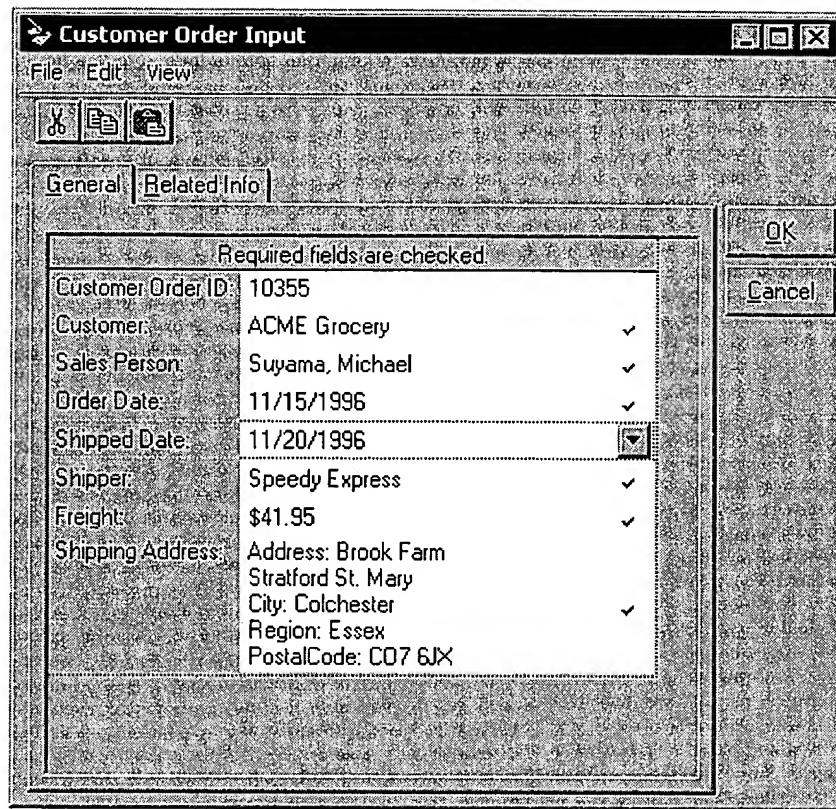


FIG. 31

100-0254-122601

Data Entry Control Decision Flowchart

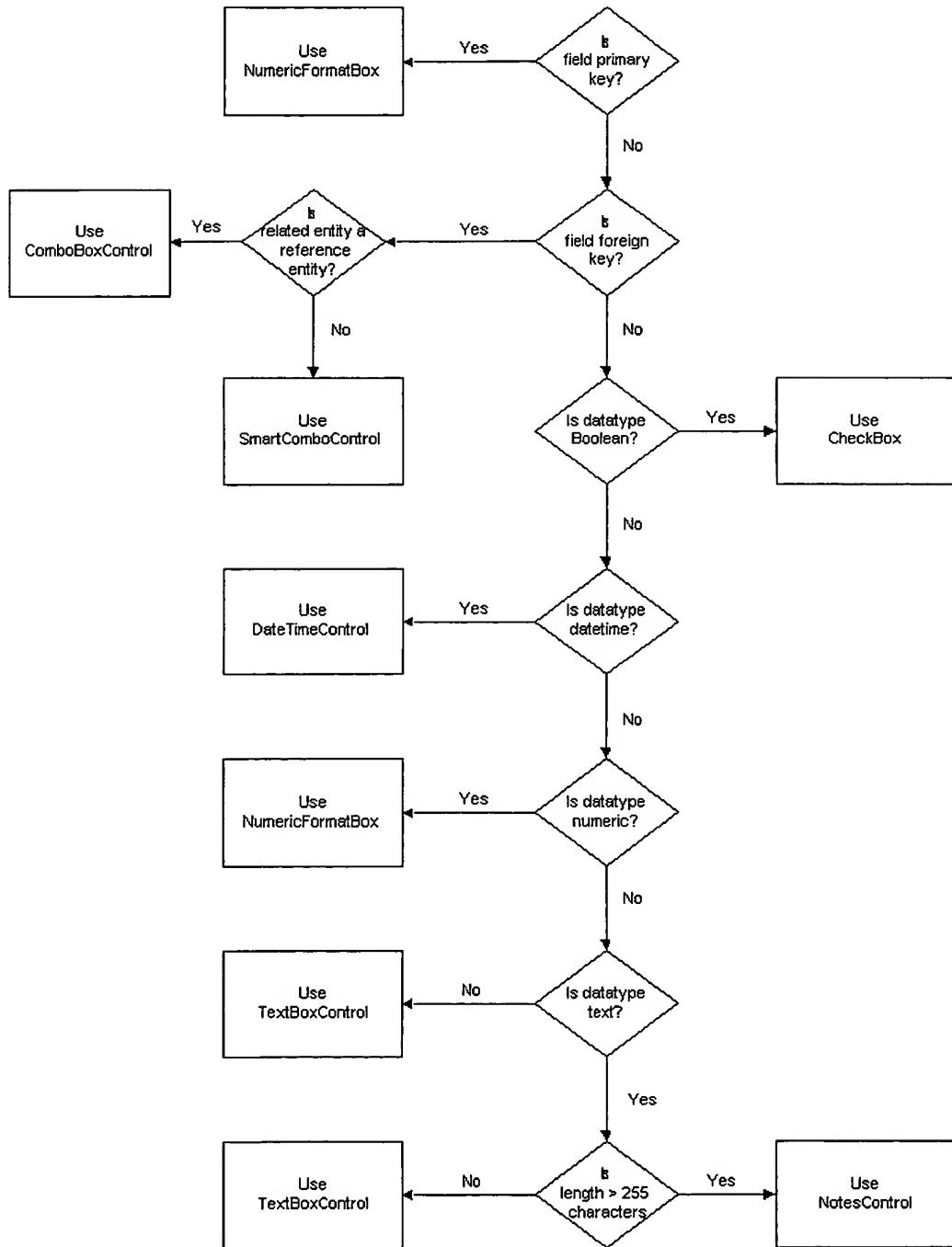


FIG. 32

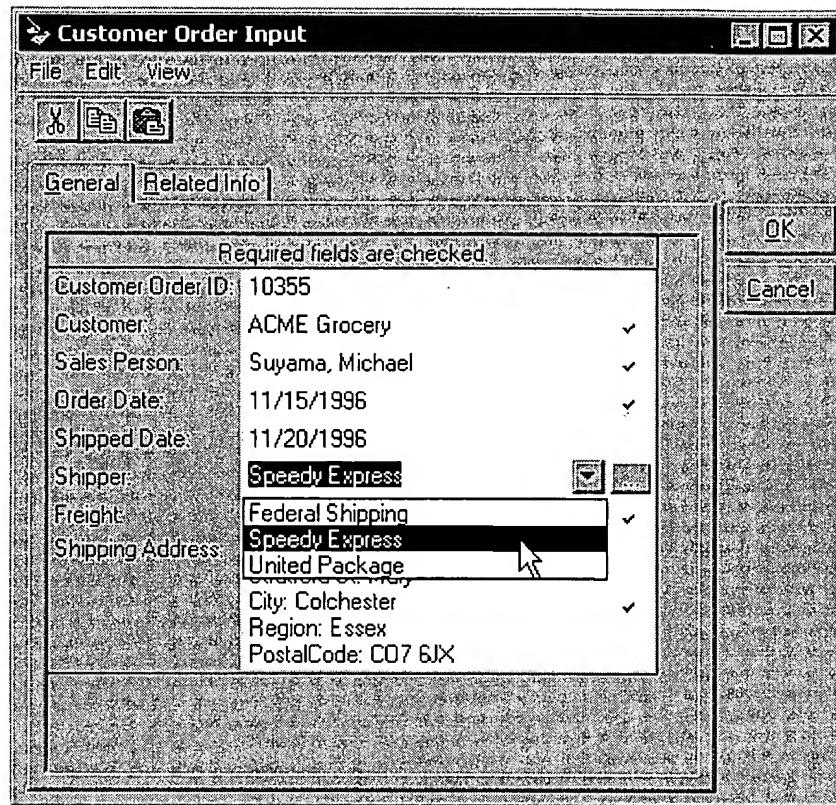


FIG. 33

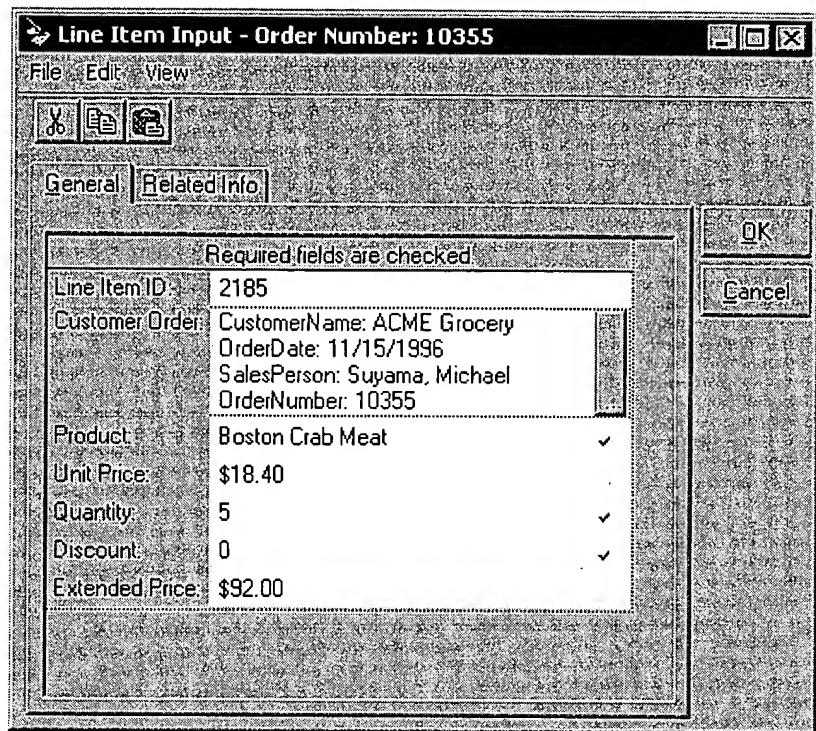


FIG. 34

3.00403501 122804

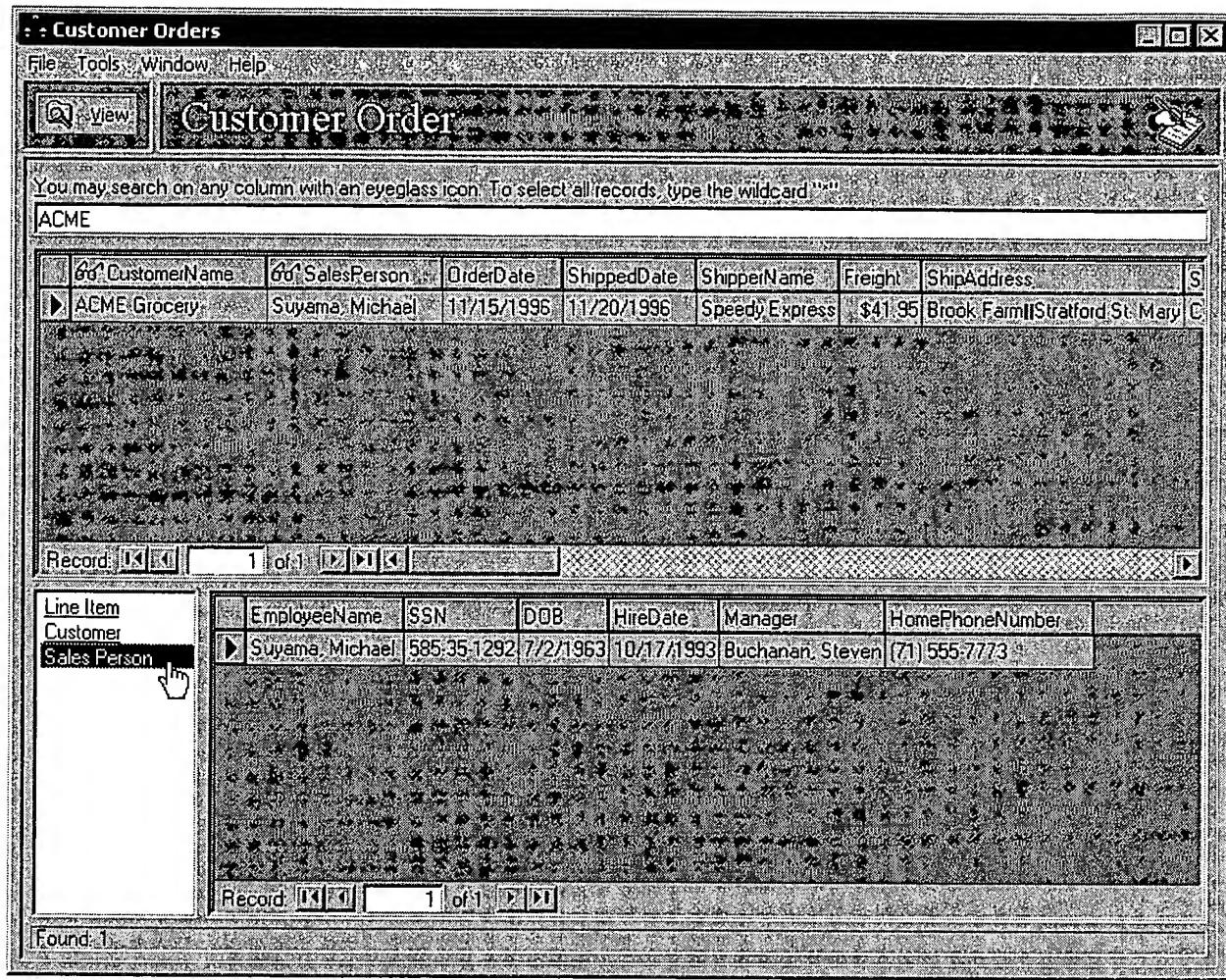


FIG. 35

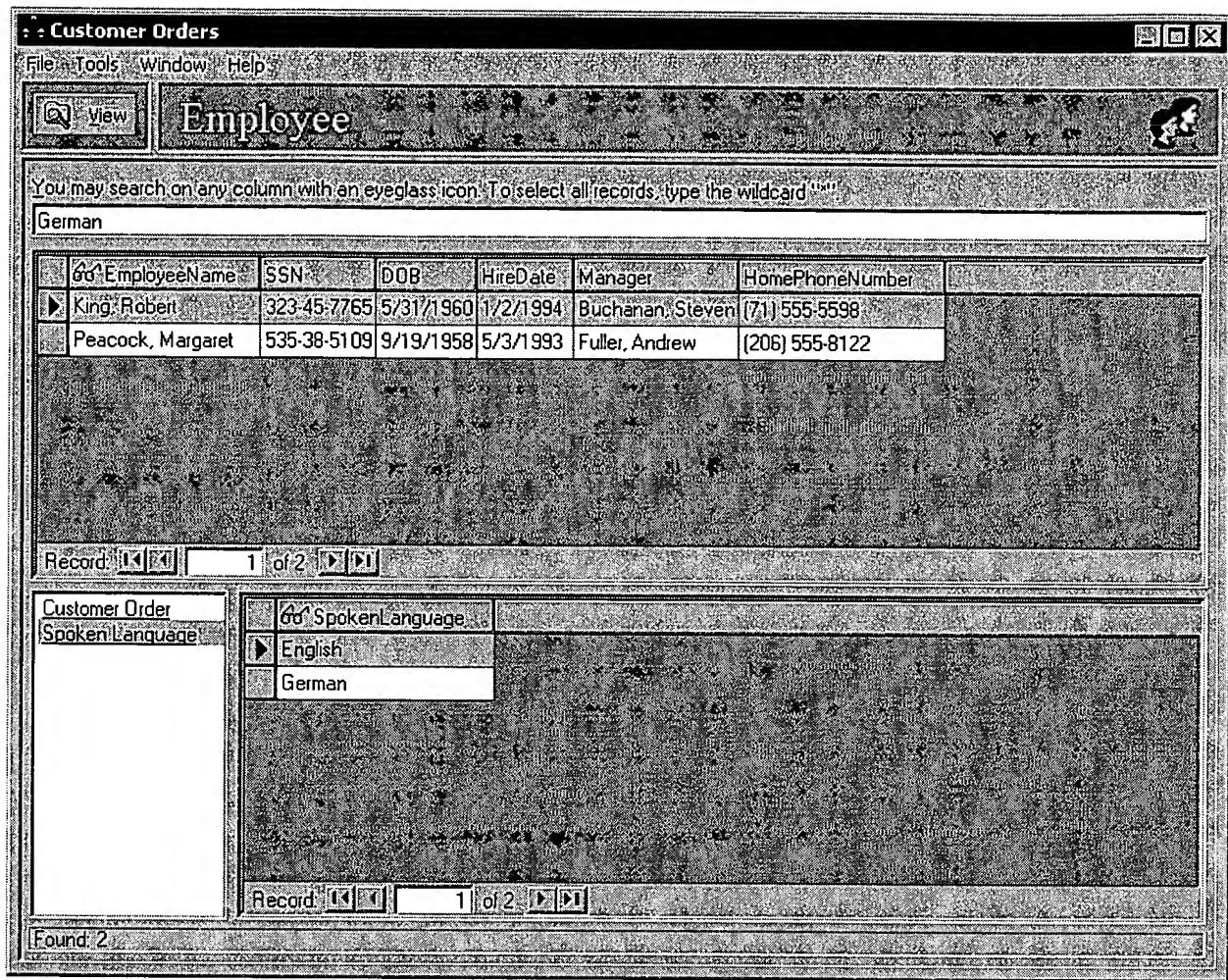


FIG. 36

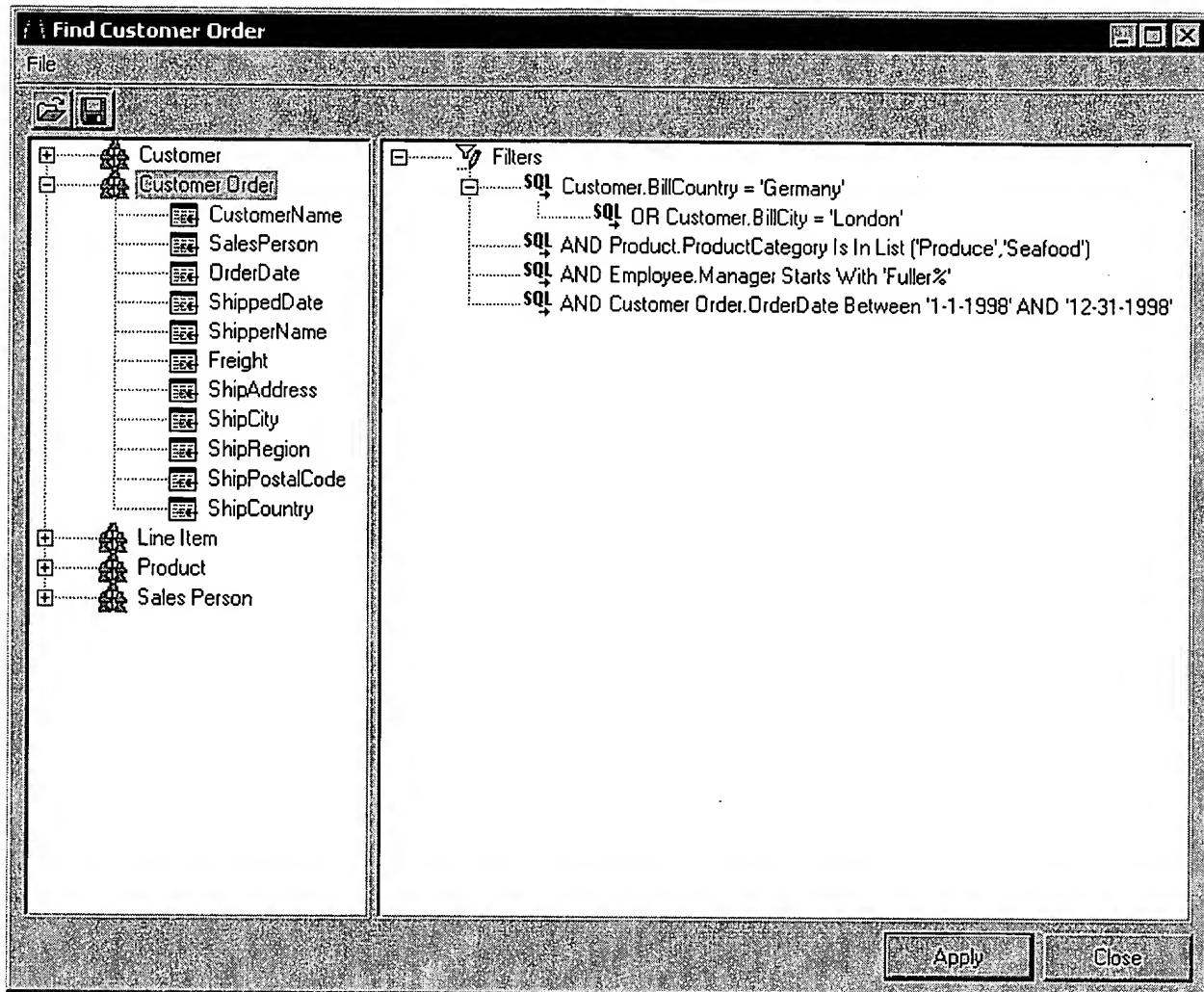


FIG. 37

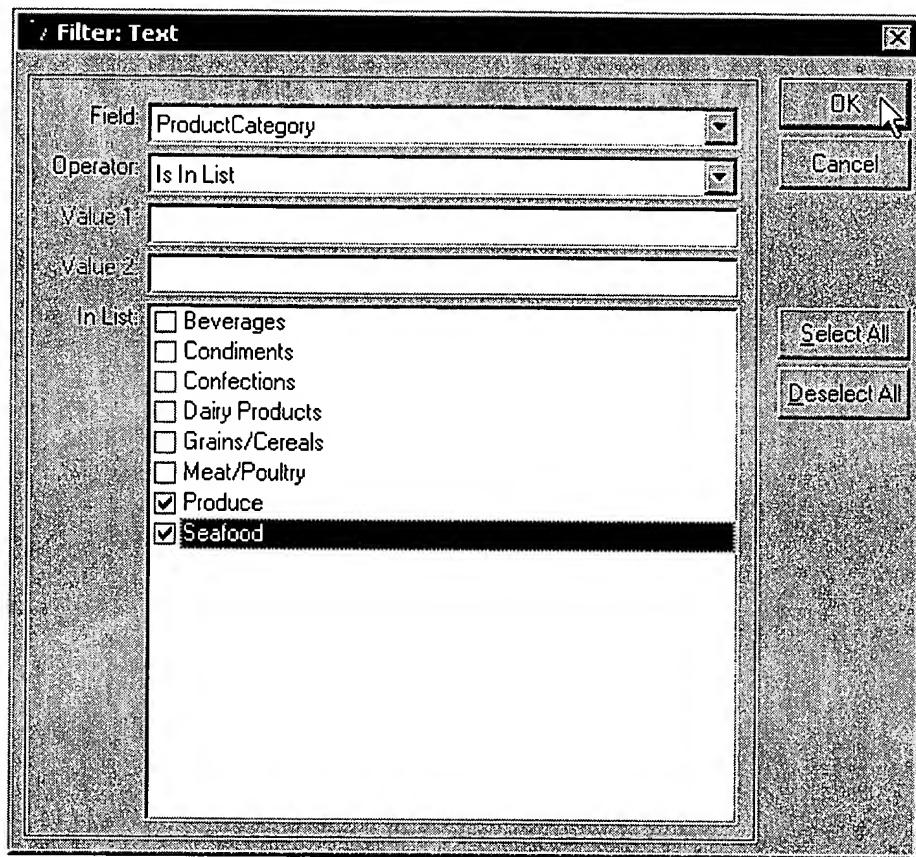


FIG. 38

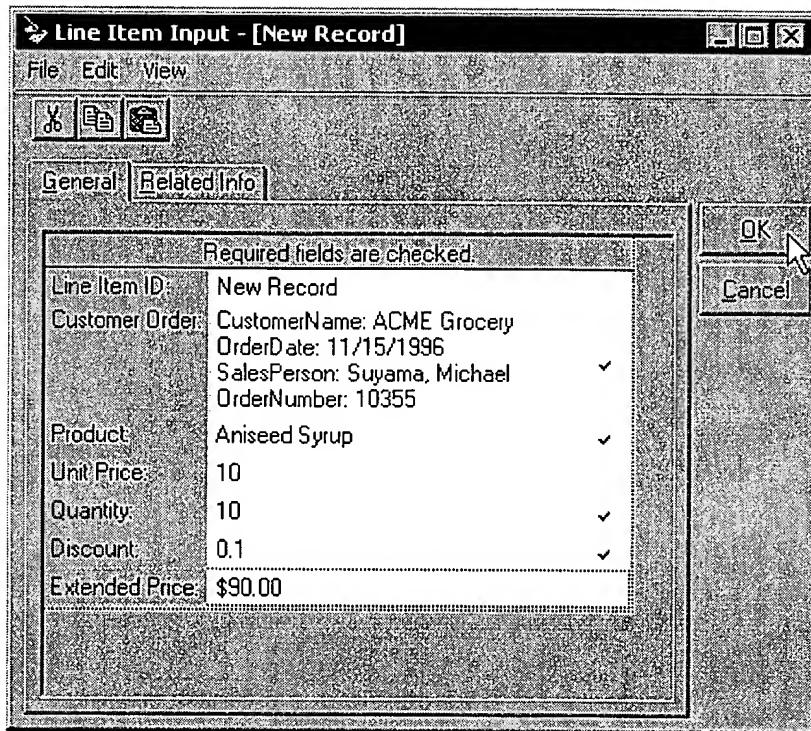


FIG. 39

Line Item Input

Product	Quantity	Discount	Extended Price
Boston Crab Meat	5	0	\$92.00
Guaraná Fantástica	25	0	\$90.00
Ravioli Angelo	25	0	\$390.00
*			

Record (Filtered) | 1 of 3 |

FIG. 40

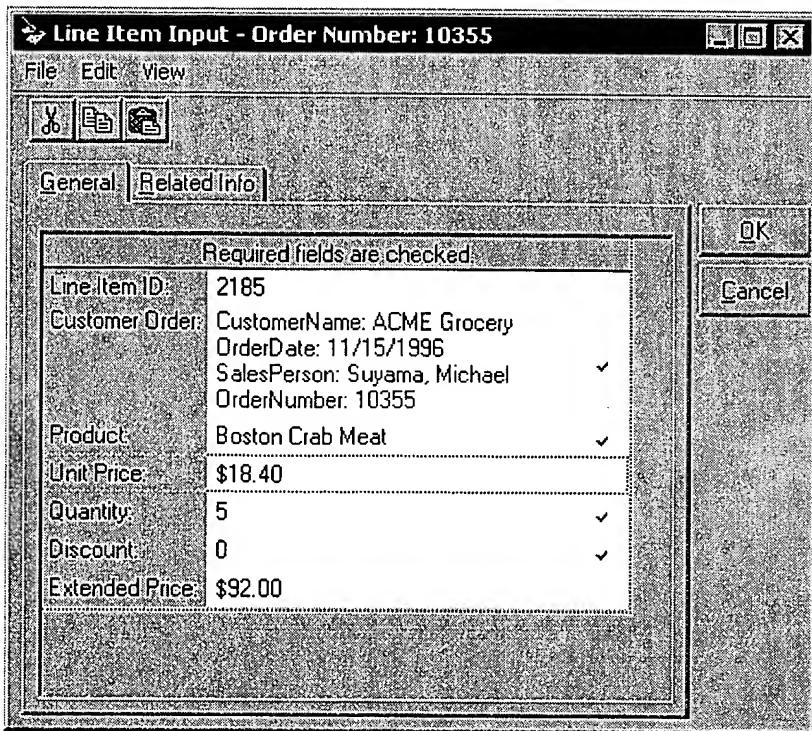


FIG. 41

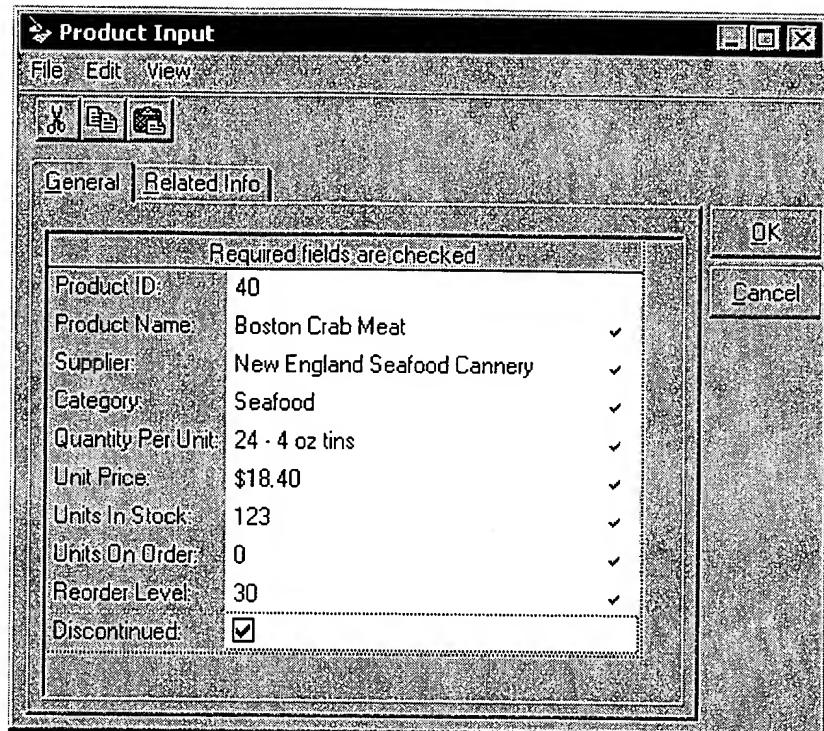


FIG. 42

10040351 122601

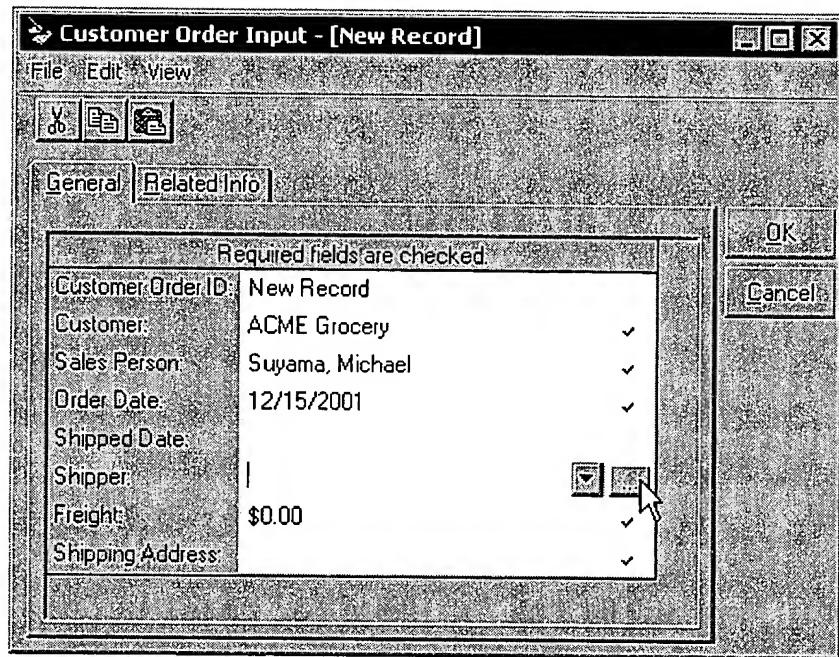


FIG. 43

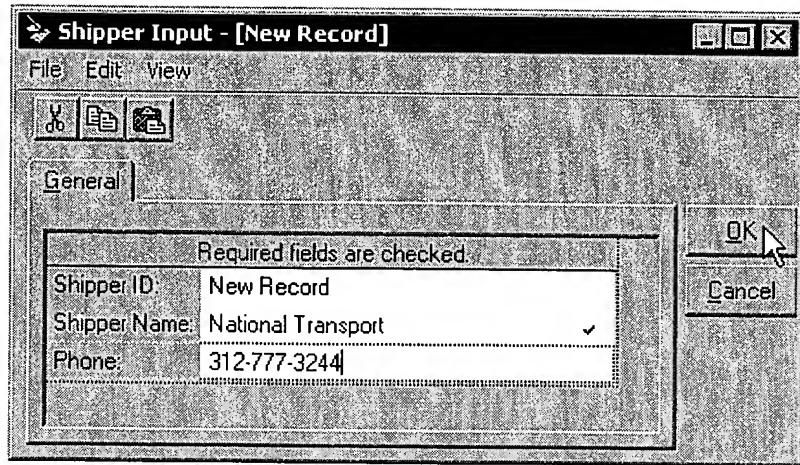


FIG. 44

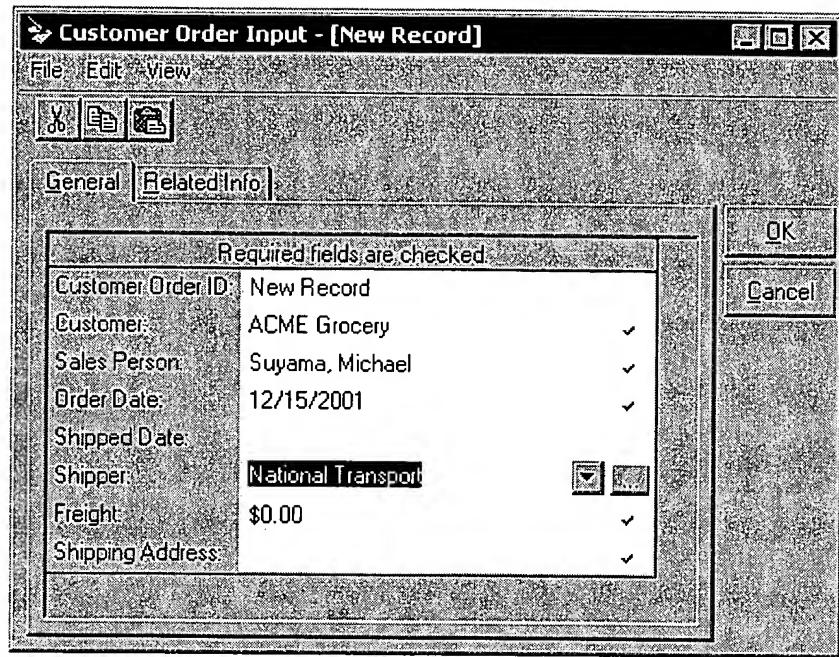


FIG. 45

10040851 4226301

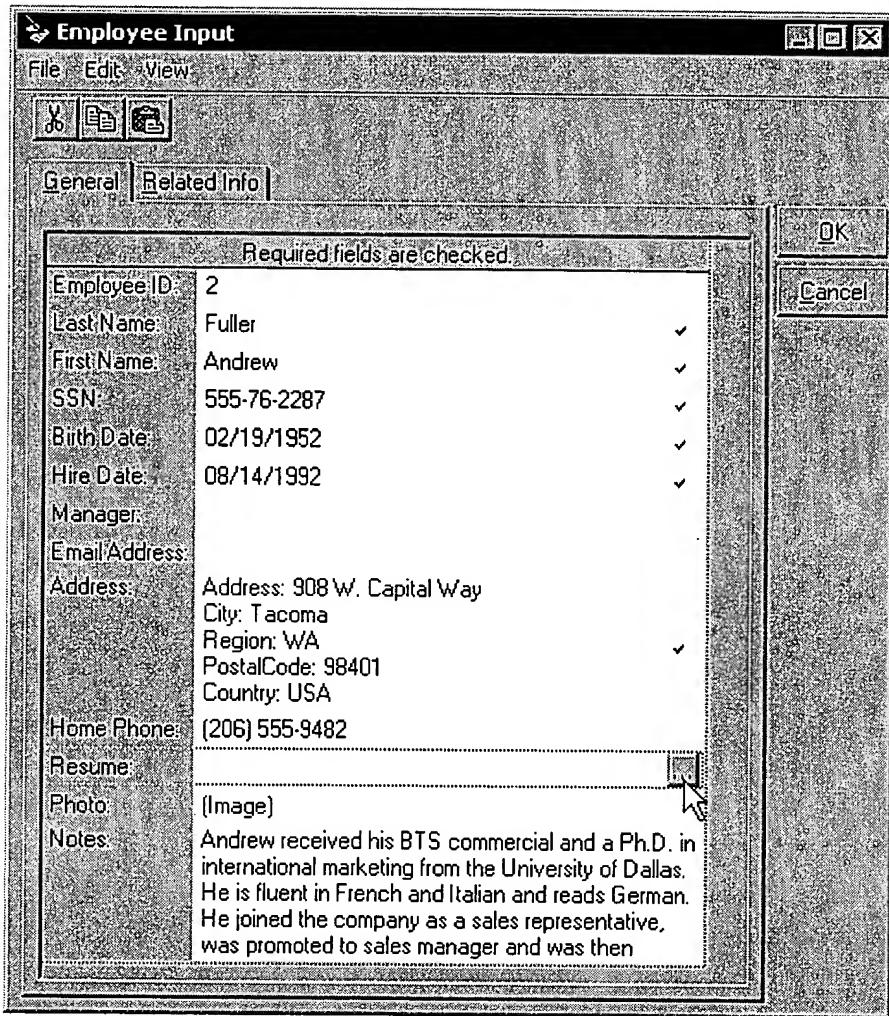


FIG. 46

10040851 122801

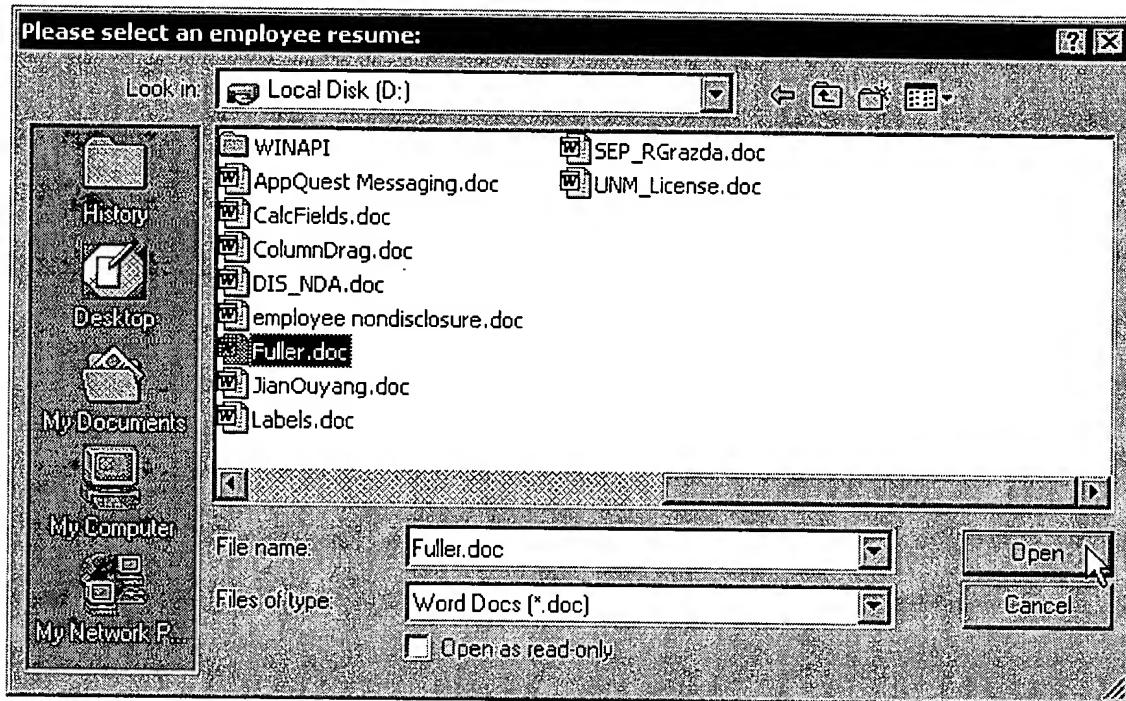


FIG. 47

10048051 • 122801

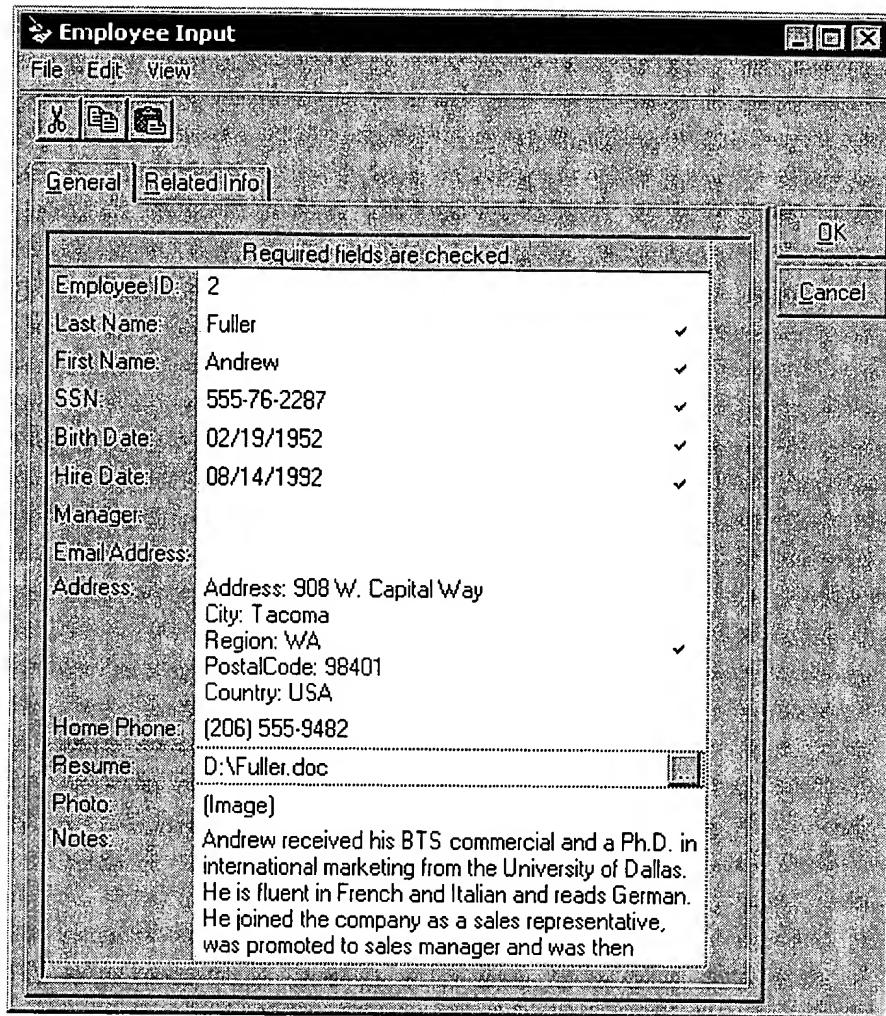


FIG. 48

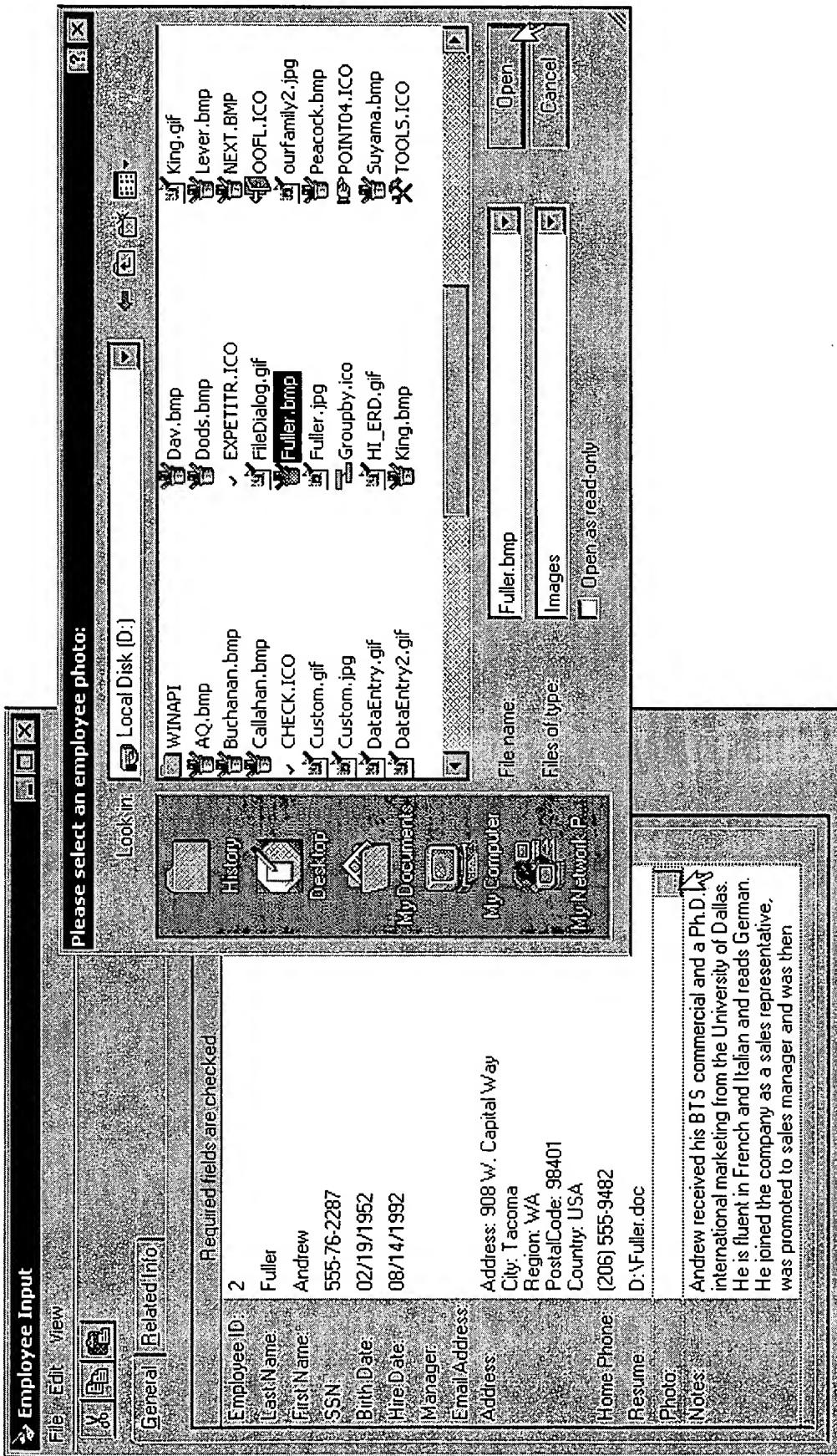


FIG. 49

Employee Input

File Edit View

General Related Info

Required fields are checked

Employee ID	2
Last Name:	Fuller
First Name:	Andrew
SSN:	555-76-2287
Birth Date:	02/19/1952
Hire Date:	08/14/1992
Manager:	
Email Address:	
Address:	Address: 908 W. Capital Way City: Tacoma Region: WA PostalCode: 98401 Country: USA
Home Phone:	(206) 555-9482
Resume:	D:\Fuller.doc
Photo:	[Image]
Notes:	Andrew received his BTS commercial and international marketing from the University of Washington. He is fluent in French and Italian and reads German. He joined the company as a sales representative. He was promoted to sales manager and was then

OK Cancel Image

FIG. 50

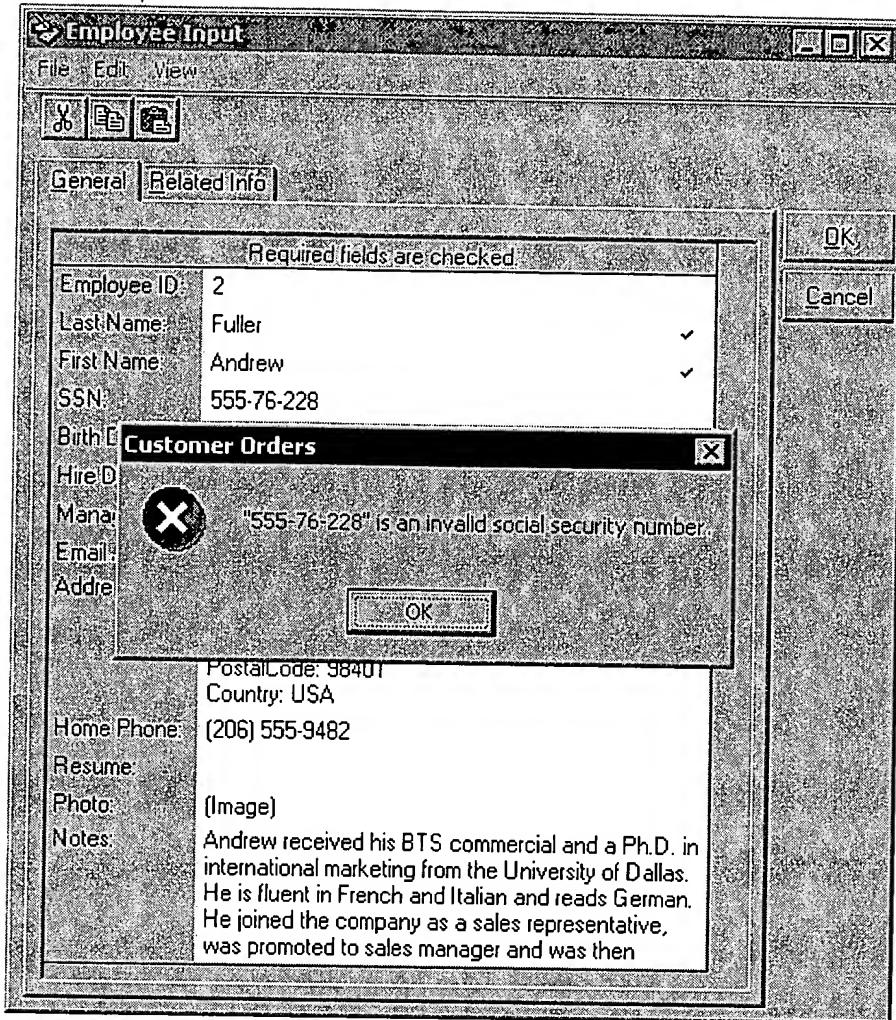


FIG. 51

FIG. 52

Employee Input

File Edit View

Zoom

General RelatedInfo

Required fields are checked.

Employee ID: 2

Last Name: Fuller

First Name: Andrew

SSN: 555-76-2287

Birth Date: 02/19/1952

Hire Date: 08/14/1992

Manager:

Email/Address

Address: Address: 908 W. Capital Way

City: Tacoma

Region: WA

Postal Code: 98401

Country: USA

Home Phone: (206) 555-9482

Resume:

Photo: [Image]

Notes: Andrew received his BTS commercial and a Ph.D. in international marketing from the University of Dallas. He is fluent in French and Italian and reads German. He joined the company as a sales representative, was promoted to sales manager and was then named vice president of sales. Andrew is a member of the Sales Management Roundtable, the Seattle Chamber of Commerce, and the Pacific Rim Importers Association.

OK Cancel

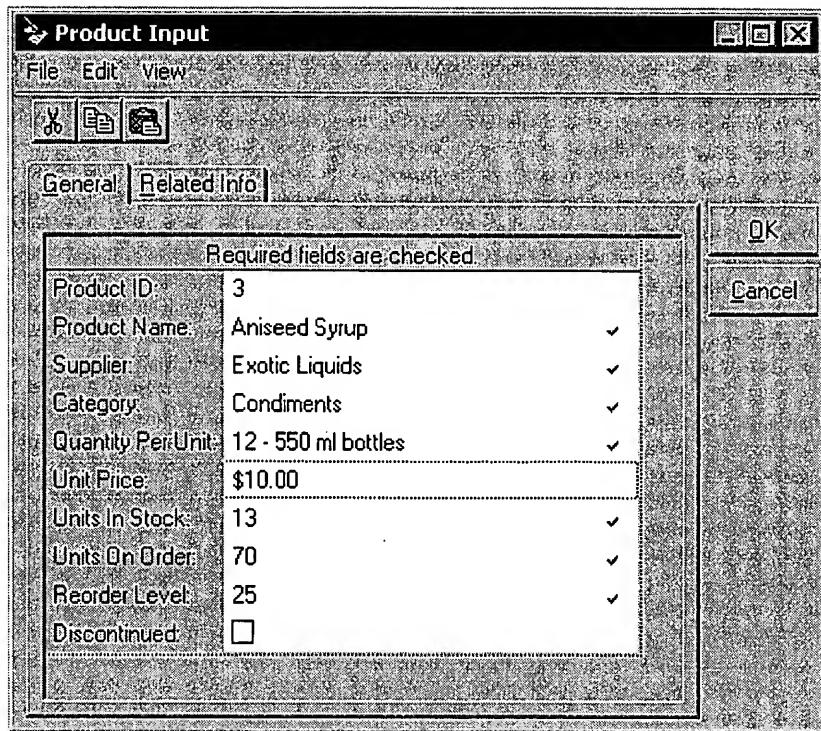


FIG. 53

1004061.1.22301

Employee Input

New Message

General		Related Info	
Employee ID:	2	Required fields are checked:	
Last Name:	Fuller		
First Name:	Andrew		
SSN:	555-76-2287		
Birth Date:	02/19/1952		
Hire Date:	08/14/1992		
Manager:			
Email Address:	afuller@acmewholesale.com		
Address:	Address: 908 Capital Way City: Tacoma Region: WA Postal Code: 98401 Country: USA		
Home Phone:	(206) 555-9482		
Resume:	D:\Fuller.doc		
Photo:	(Image)		
Notes:	Andrew received his BTS commercial and a Ph.D. in International marketing from the University of Dallas. He is fluent in French and Italian and reads German. He joined the company as a sales representative, was promoted to sales manager and was then		

File Edit View Insert Format Tools Message Help

File Edit View Insert Format Tools Message Help

From: john@dynamicinfo.solutions.com (mail.dynamicinfo.solutions.com)

To: afuller@acmewholesale.com

Cc:

Subject:

Send Undo Cut Copy Paste Check Spelling Attach Priority

FIG. 54

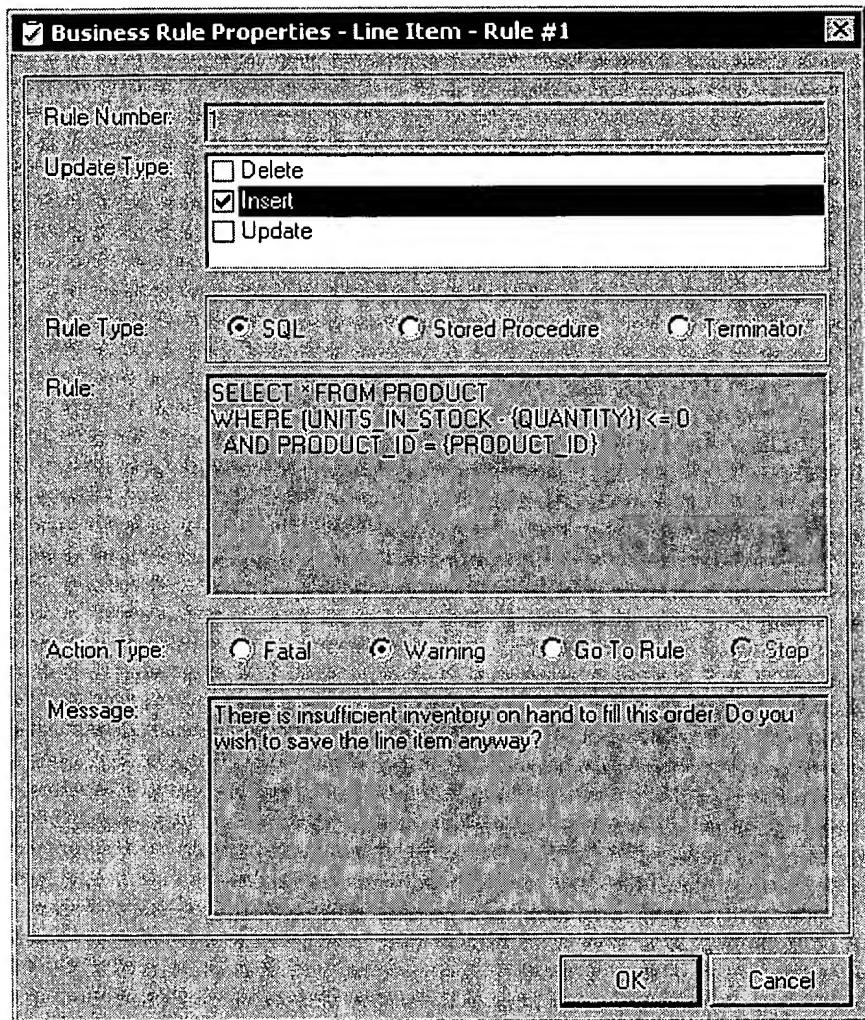


FIG. 55

3.0040851 • 122604

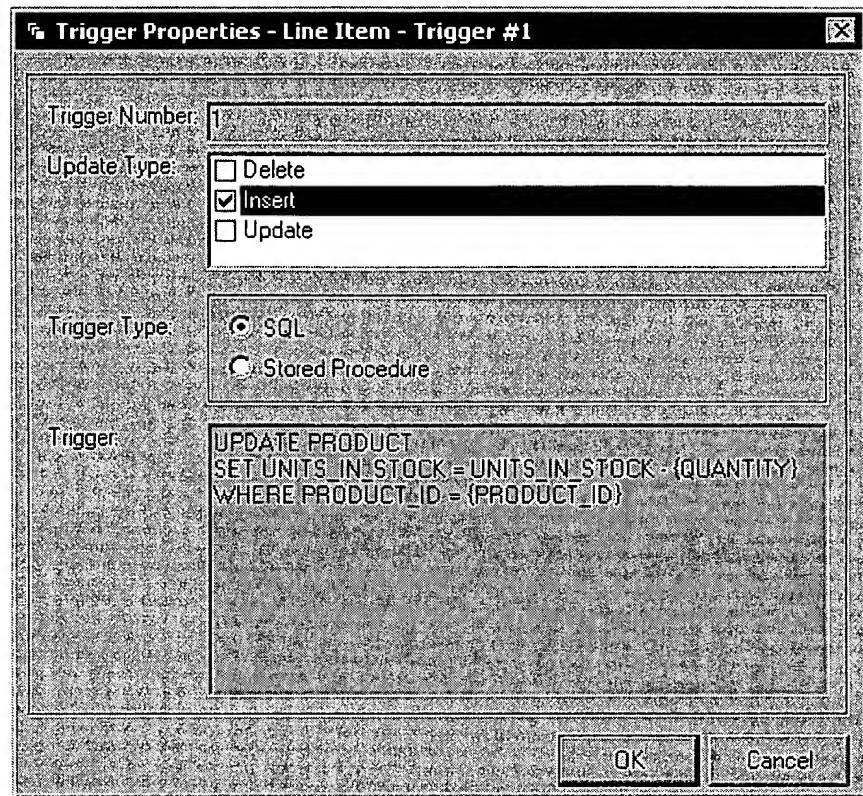


FIG. 56

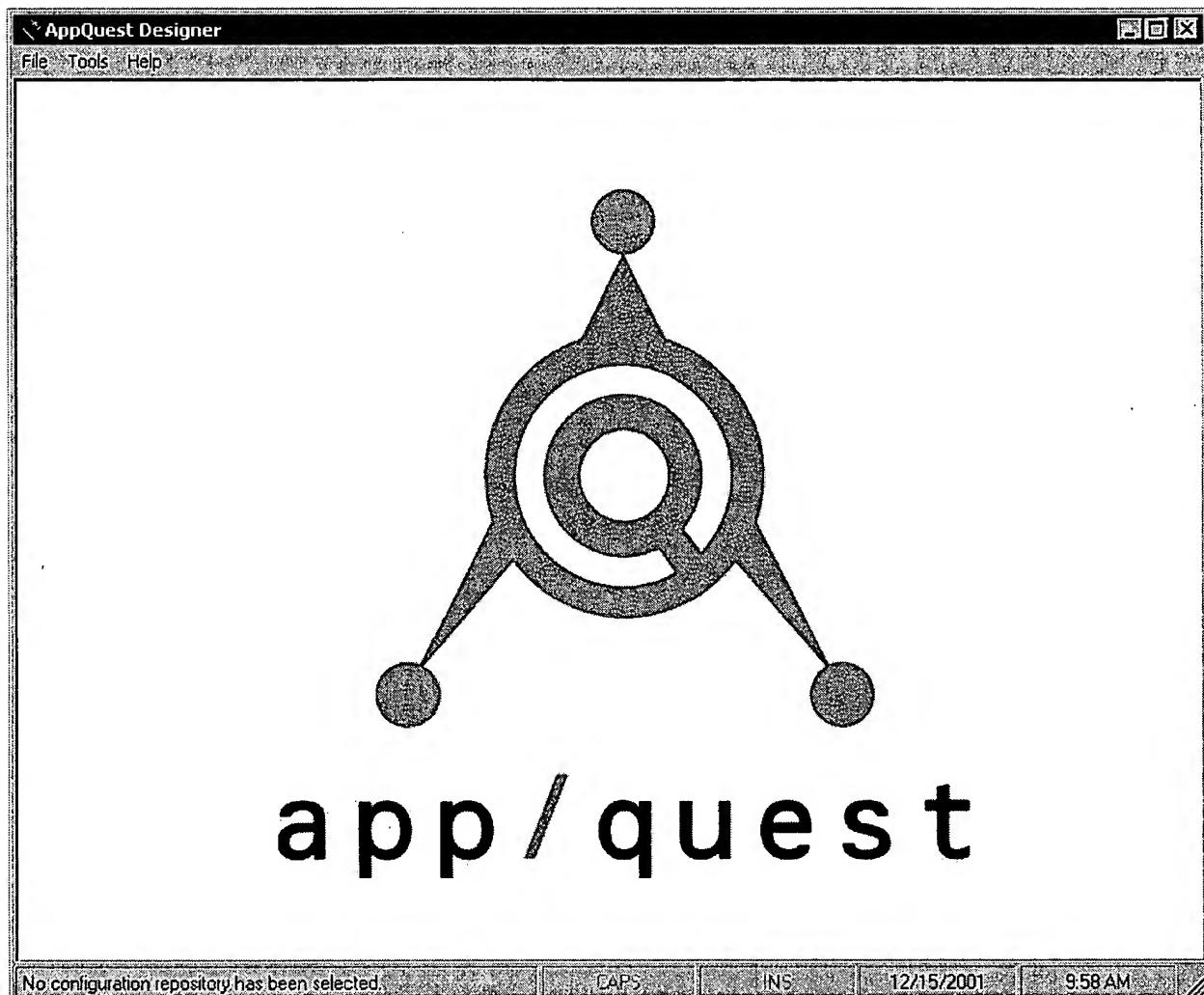
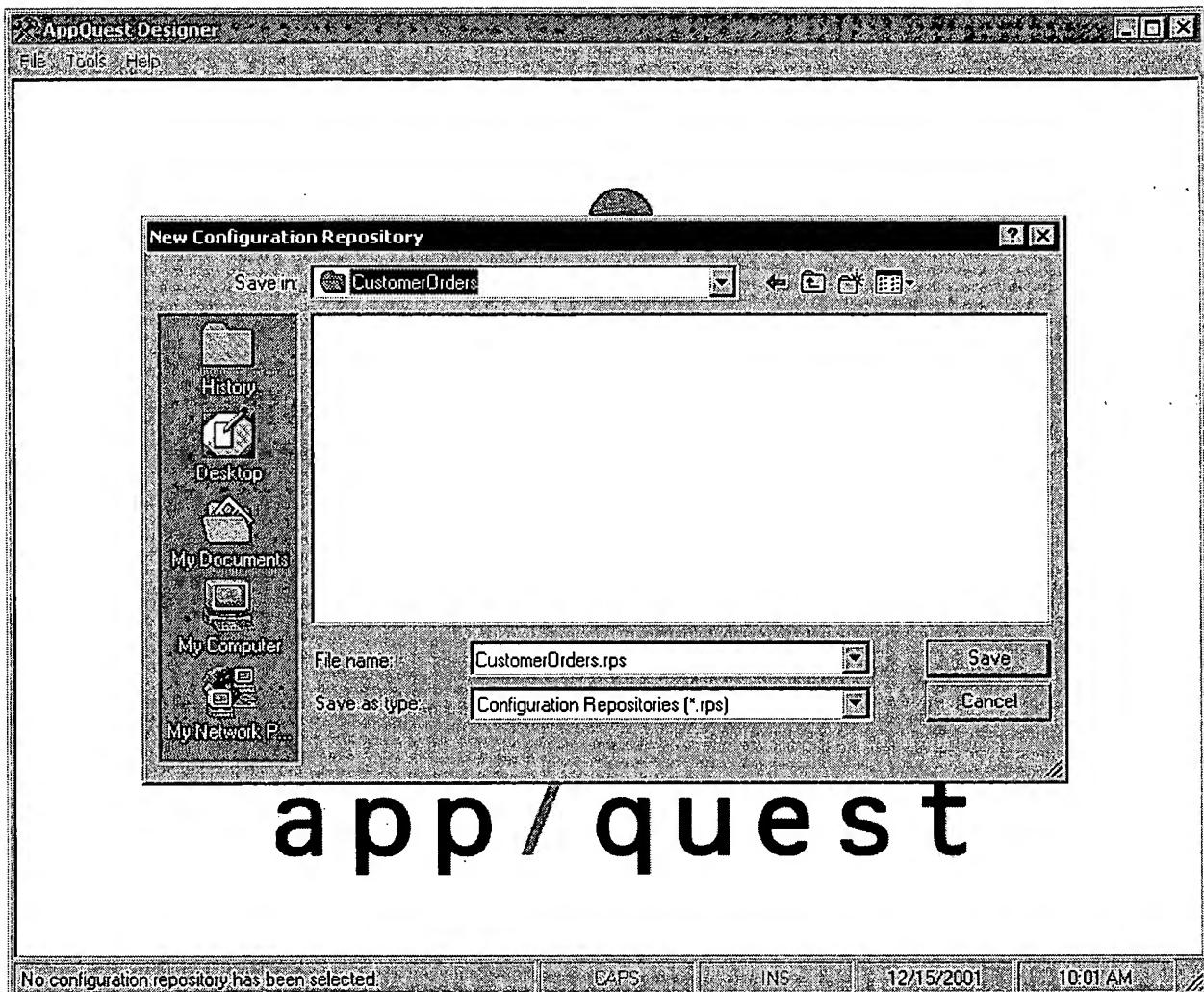


FIG. 57



app / quest

FIG. 58

10040851.122601

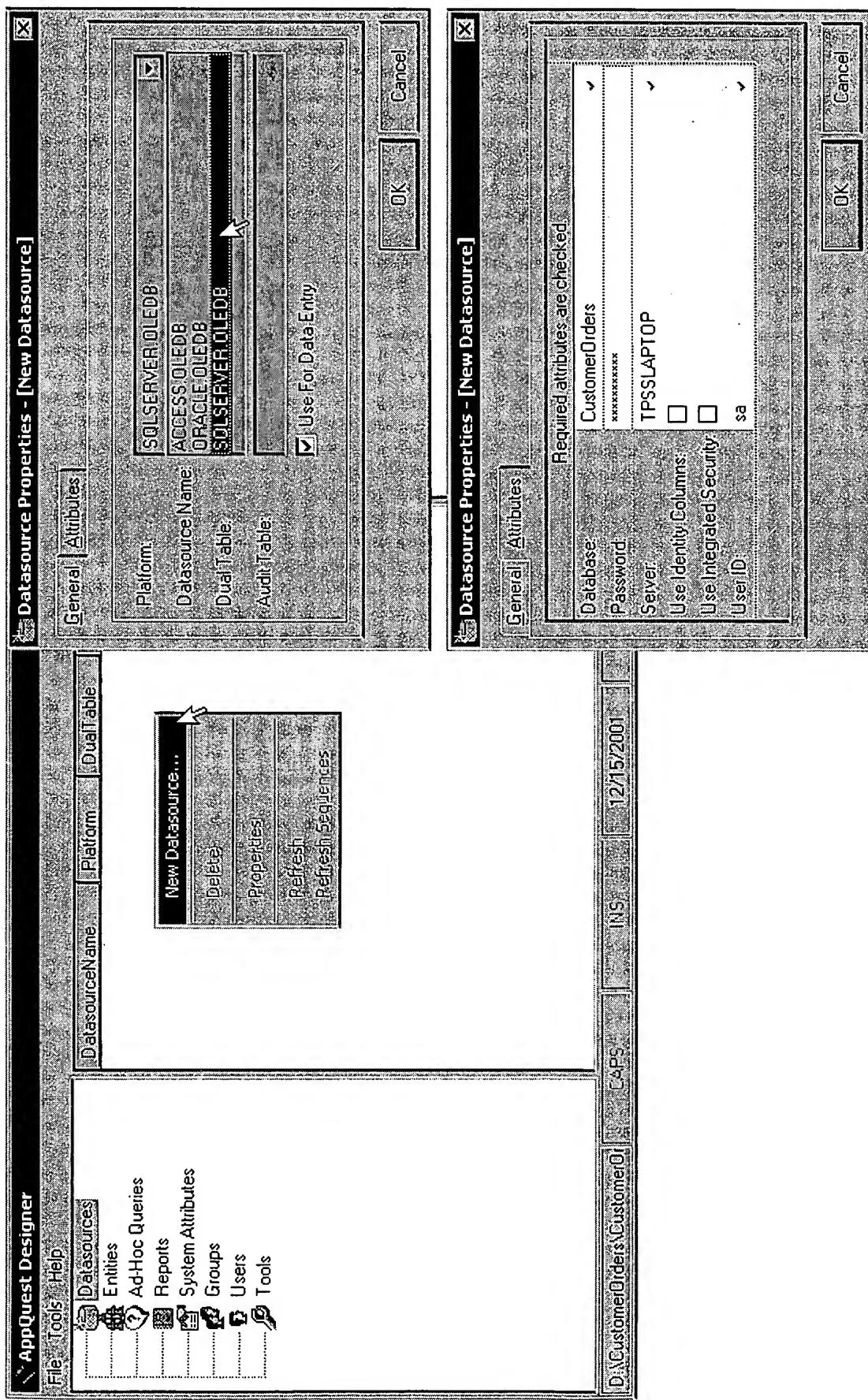


FIG. 59

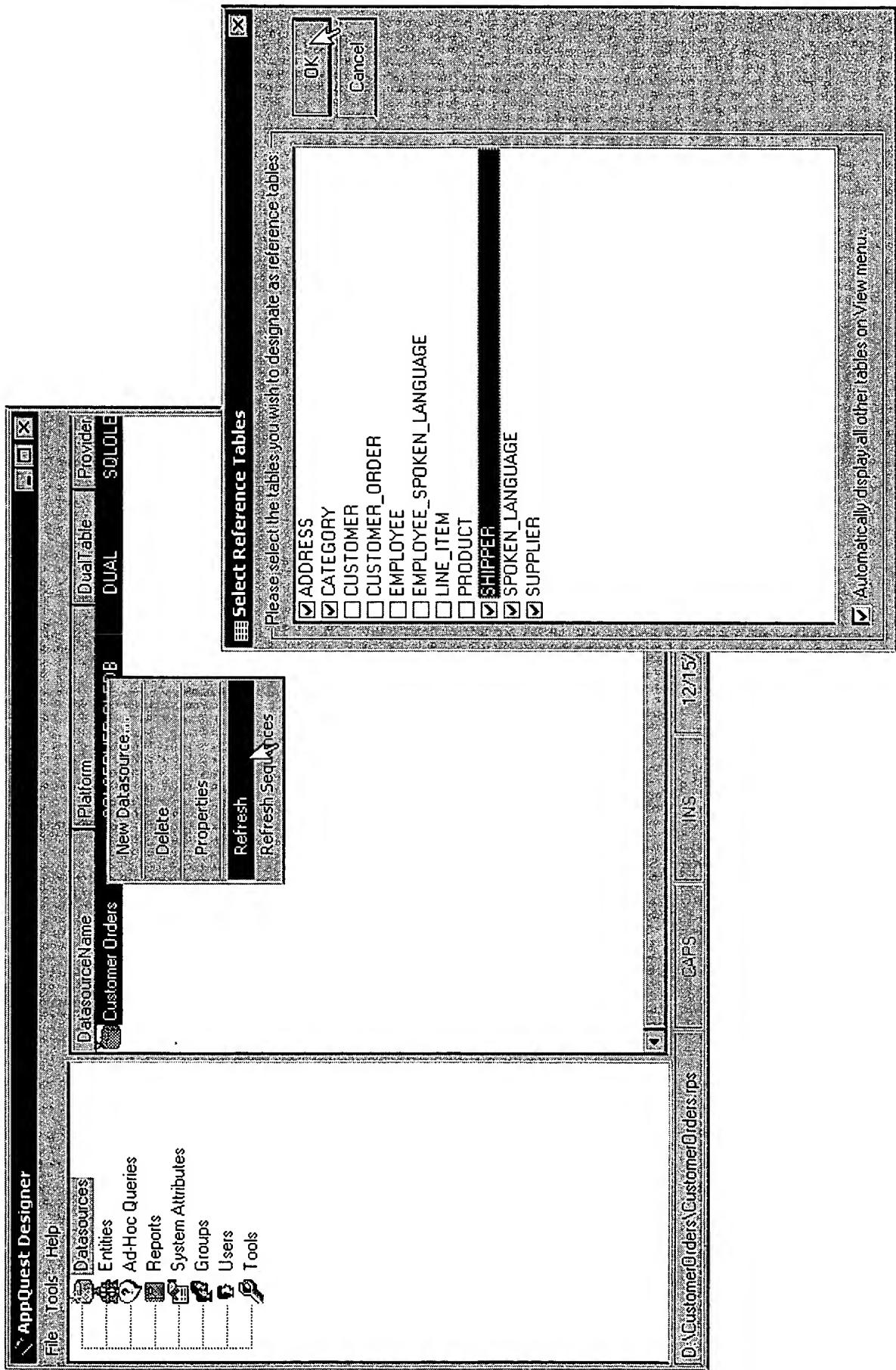


FIG. 60

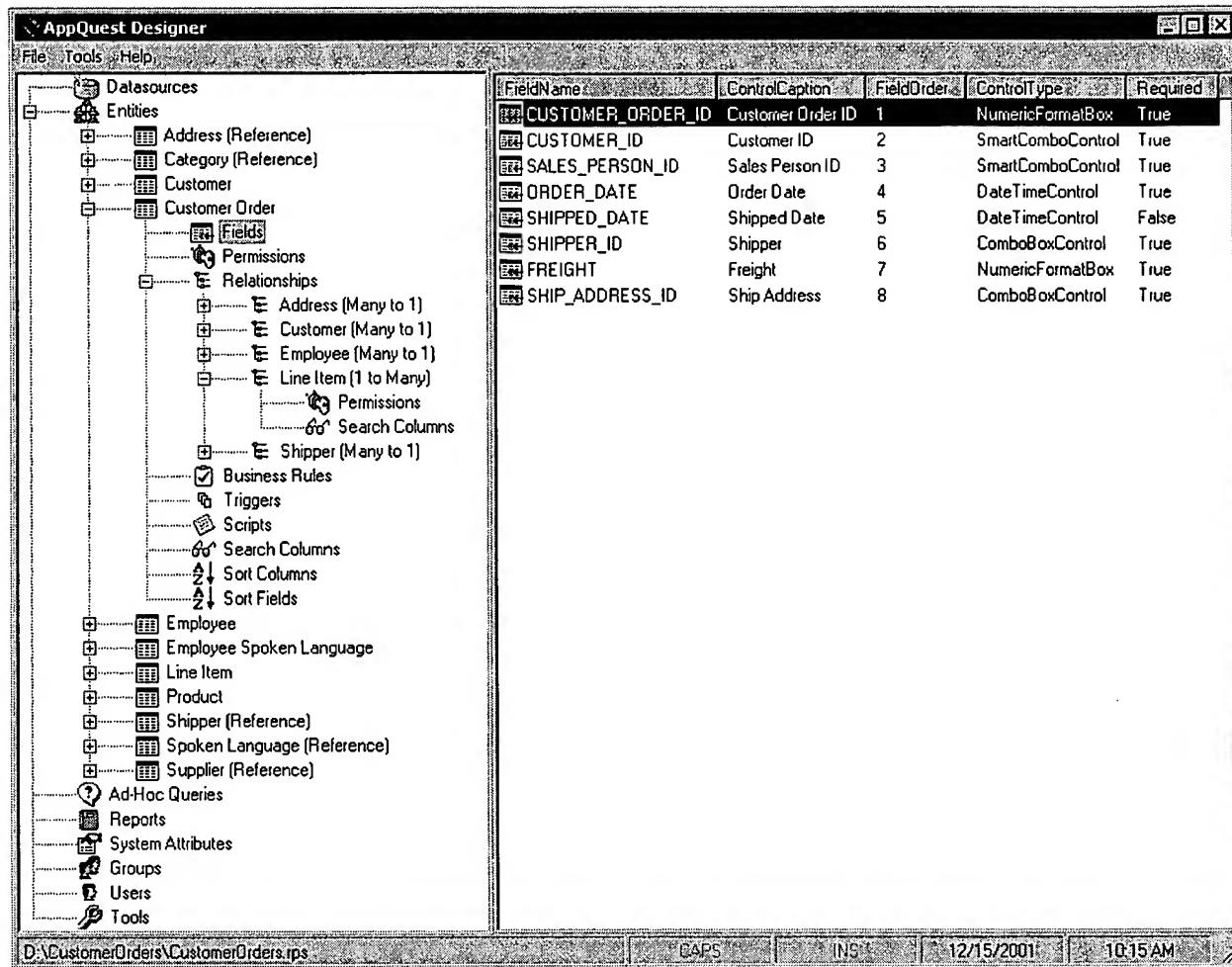


FIG. 61

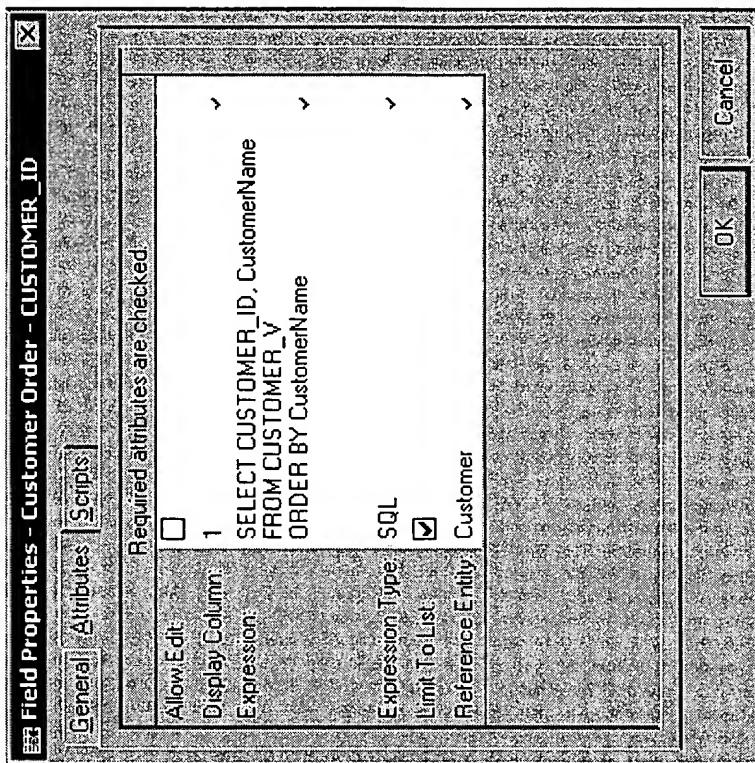
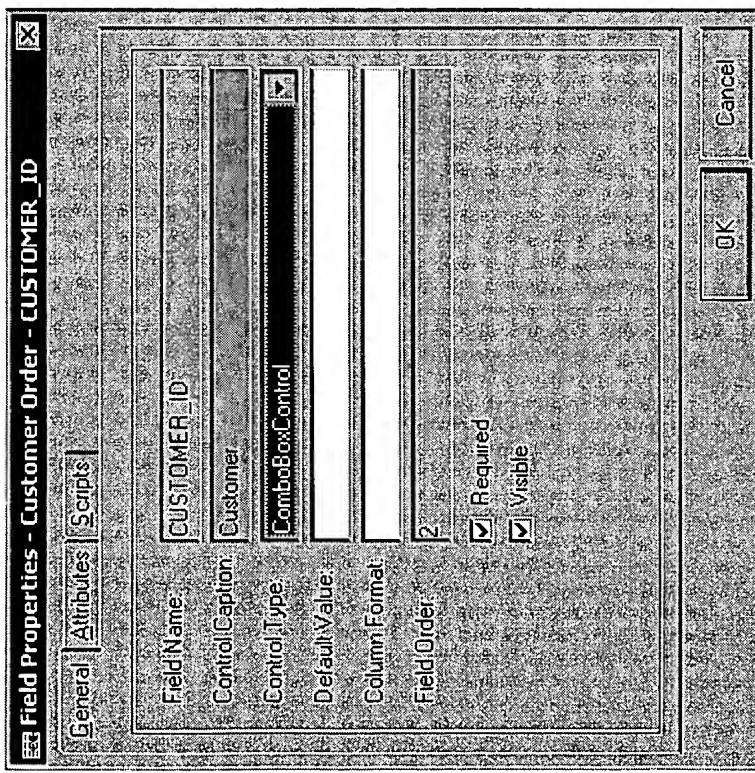


FIG. 62

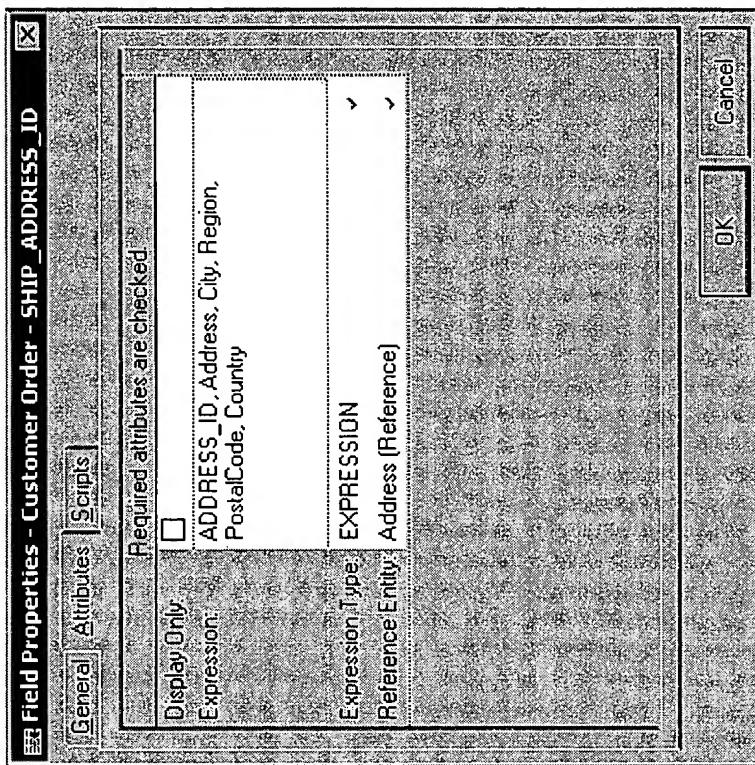
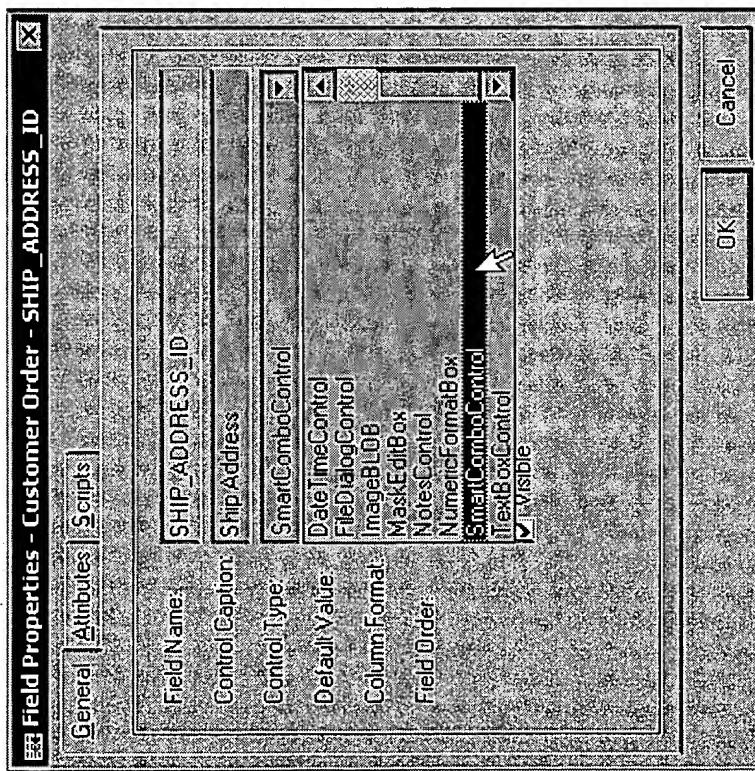


FIG. 63

Entity Properties - Customer Order

General	Attributes	Filters	Search Path	Links
Entity ID	4			
Entity Caption	Customer Order			
DataSource	Customer Orders			
Table Name	CUSTOMER_ORDER			
Table Alias	CUSTOMER_ORDER			
Primary Key	CUSTOMER_ORDER_ID			
Recordsource	CUSTOMER_ORDER_V			
Icon	CustomerOrder.ico			
Relative Order	2			

Entity Properties - Customer Order

General
Attributes
Filters
Search Path
Links

Required attributes are checked.

Allow Grouping	<input type="checkbox"/>	Audit On	<input type="checkbox"/>	Custom Data Entity	<input type="checkbox"/>
Custom Filter	<input checked="" type="checkbox"/>	Form Caption Expression	Order Number: ' + Convert(varchar(10), CUSTOMER_ORDER_ID)		
List Limit	1000	Minimum Width (Chars)	0		
Report Name		Report Path			
Report Type		Search On Key Press	<input type="checkbox"/>		

Show Primary Key

Display On View Menu

Reference Table

Visible

Cancel

OK

FIG. 64

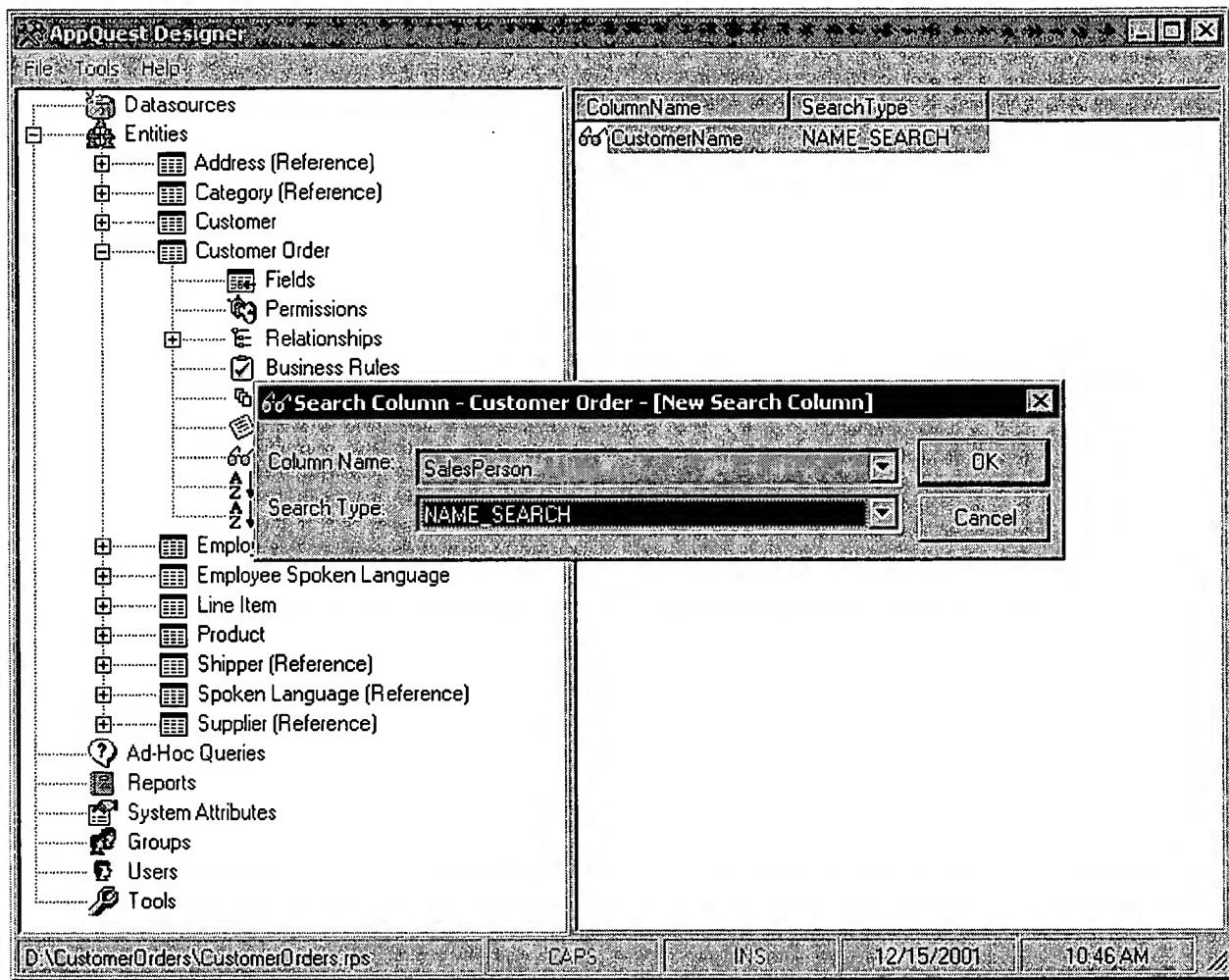


FIG. 65

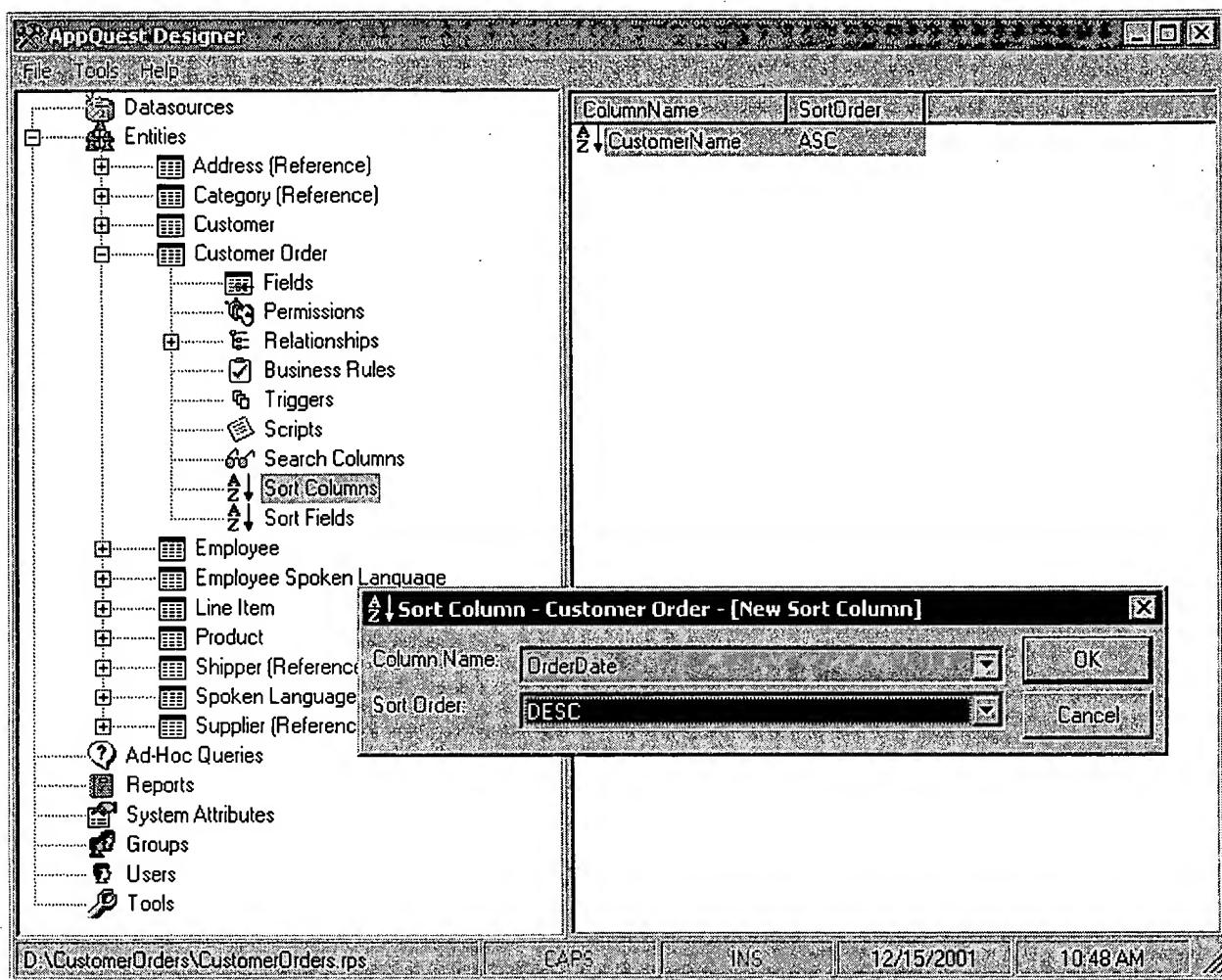


FIG. 66

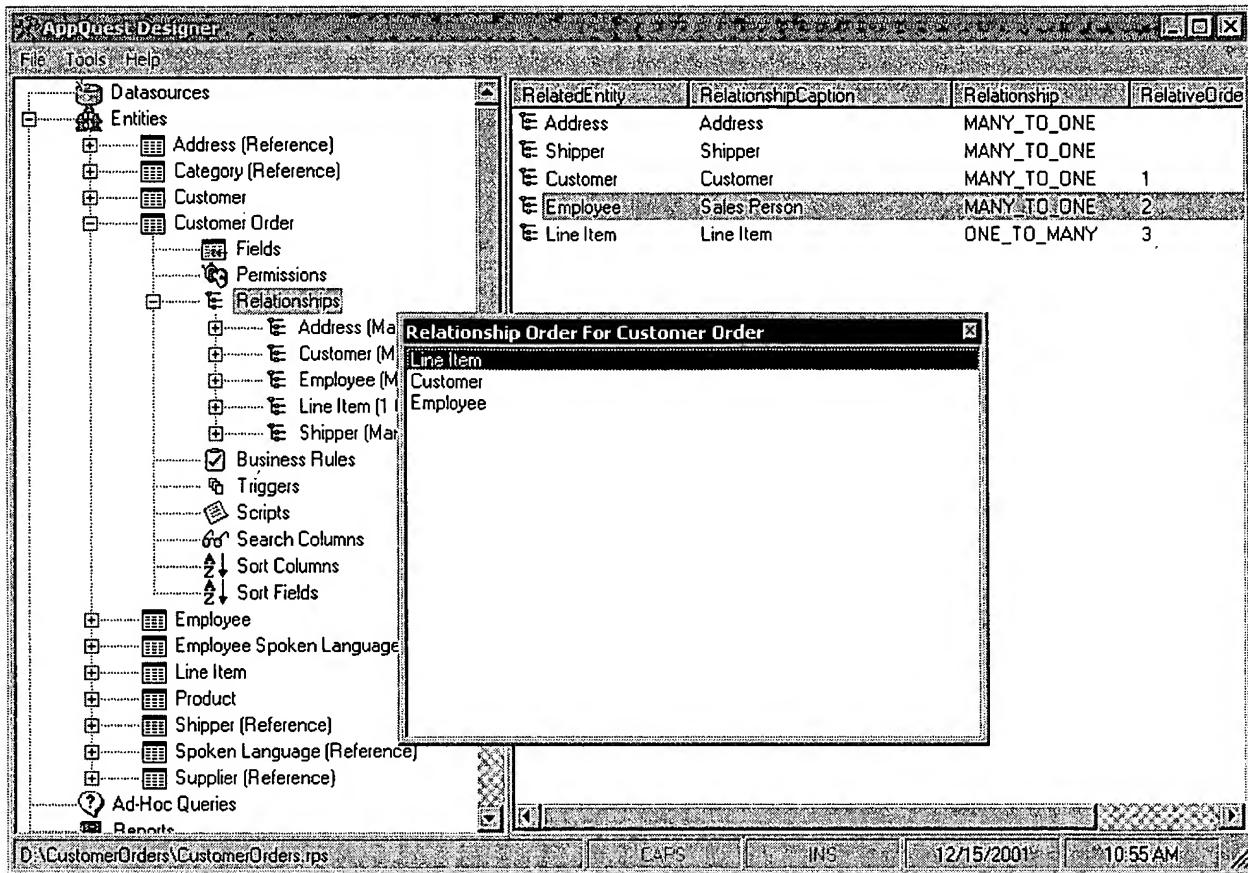


FIG. 67

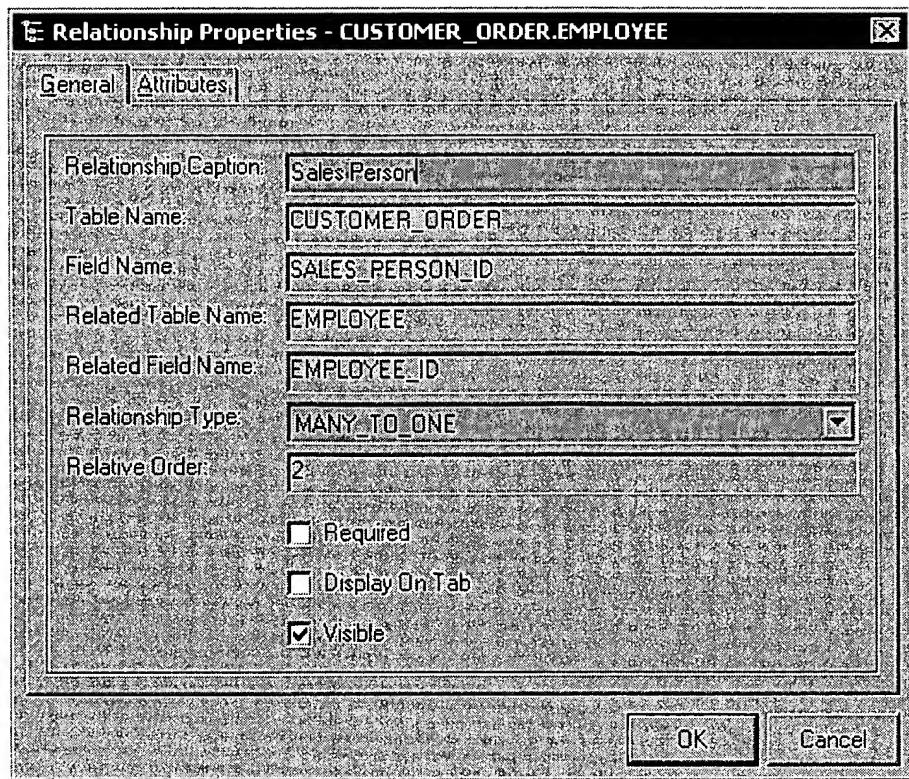


FIG. 68

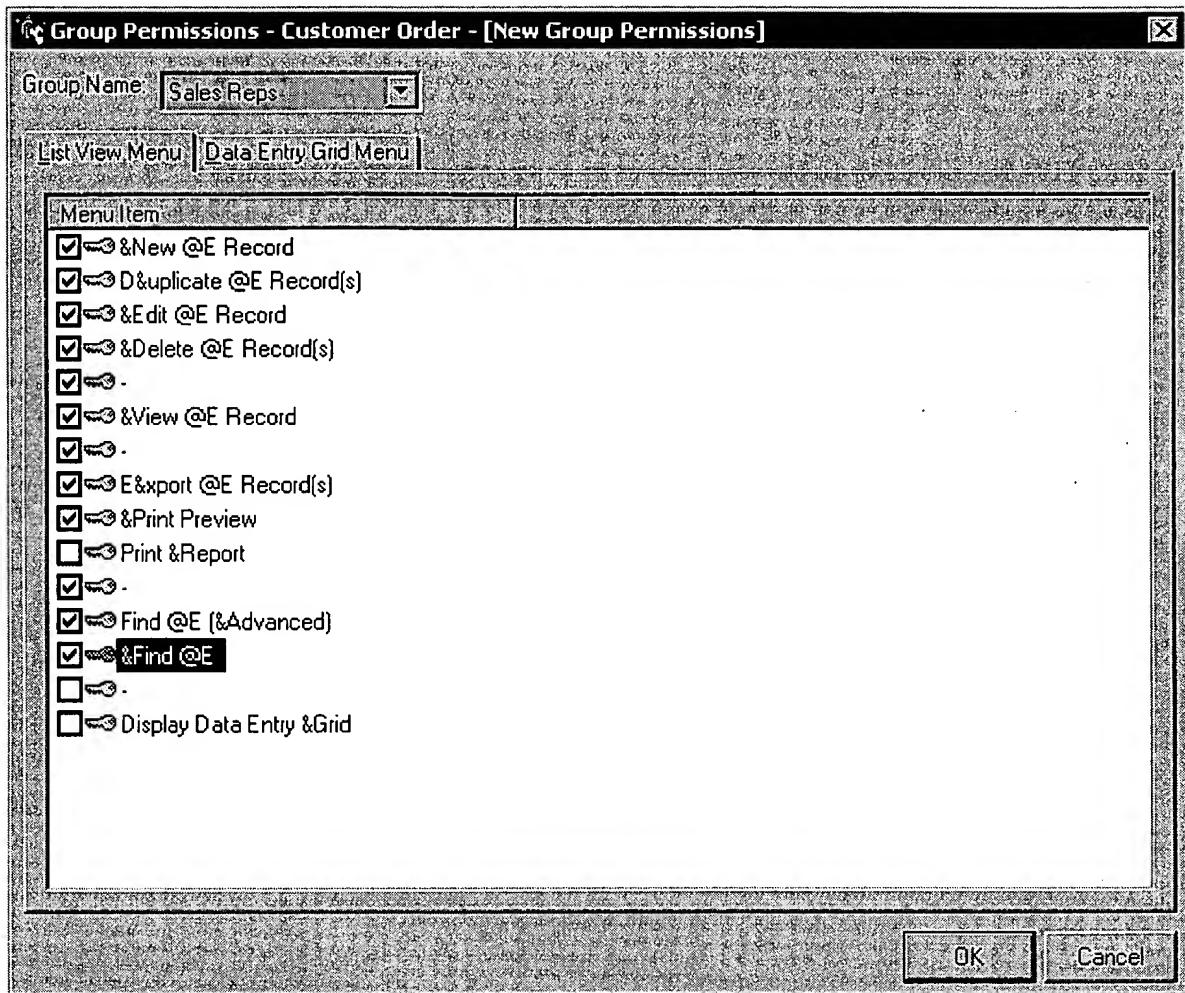


FIG. 69

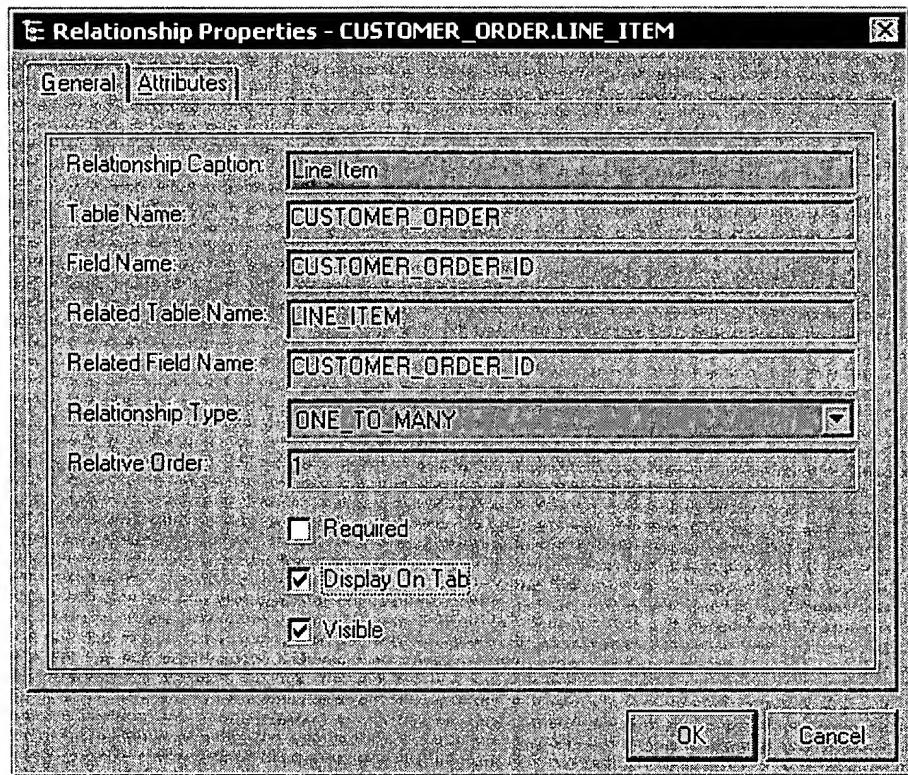


FIG. 70

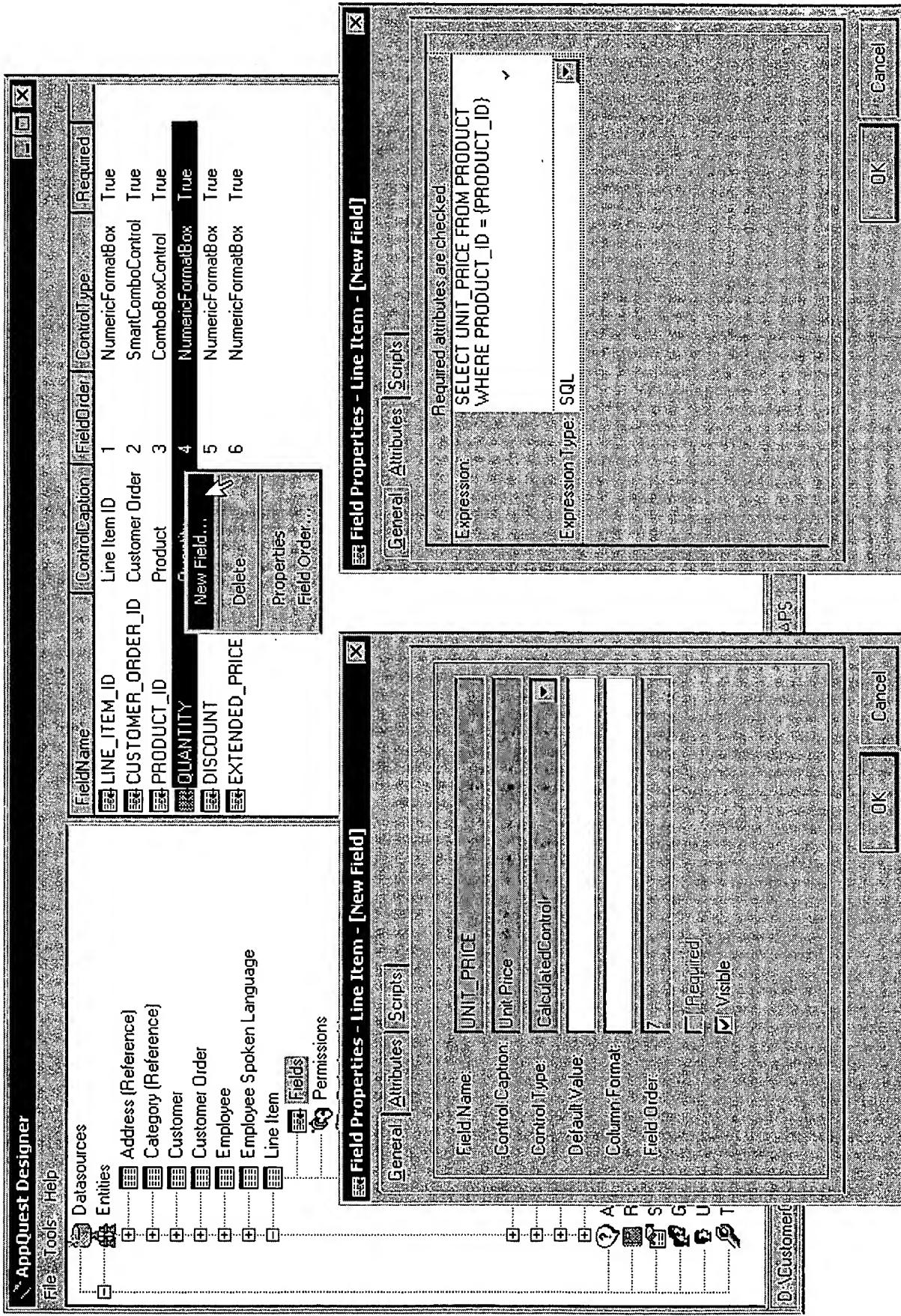


FIG. 71

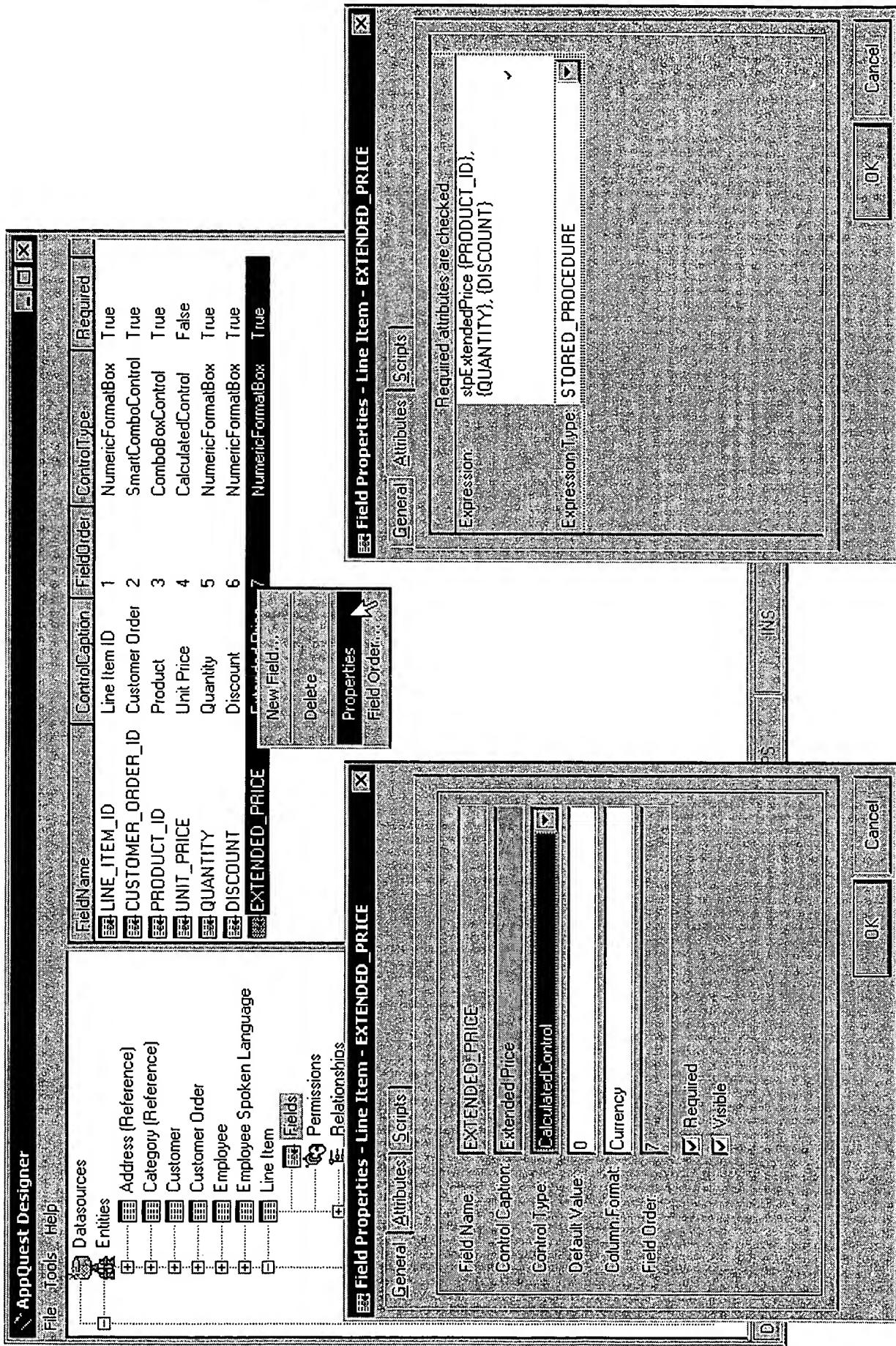


FIG. 72

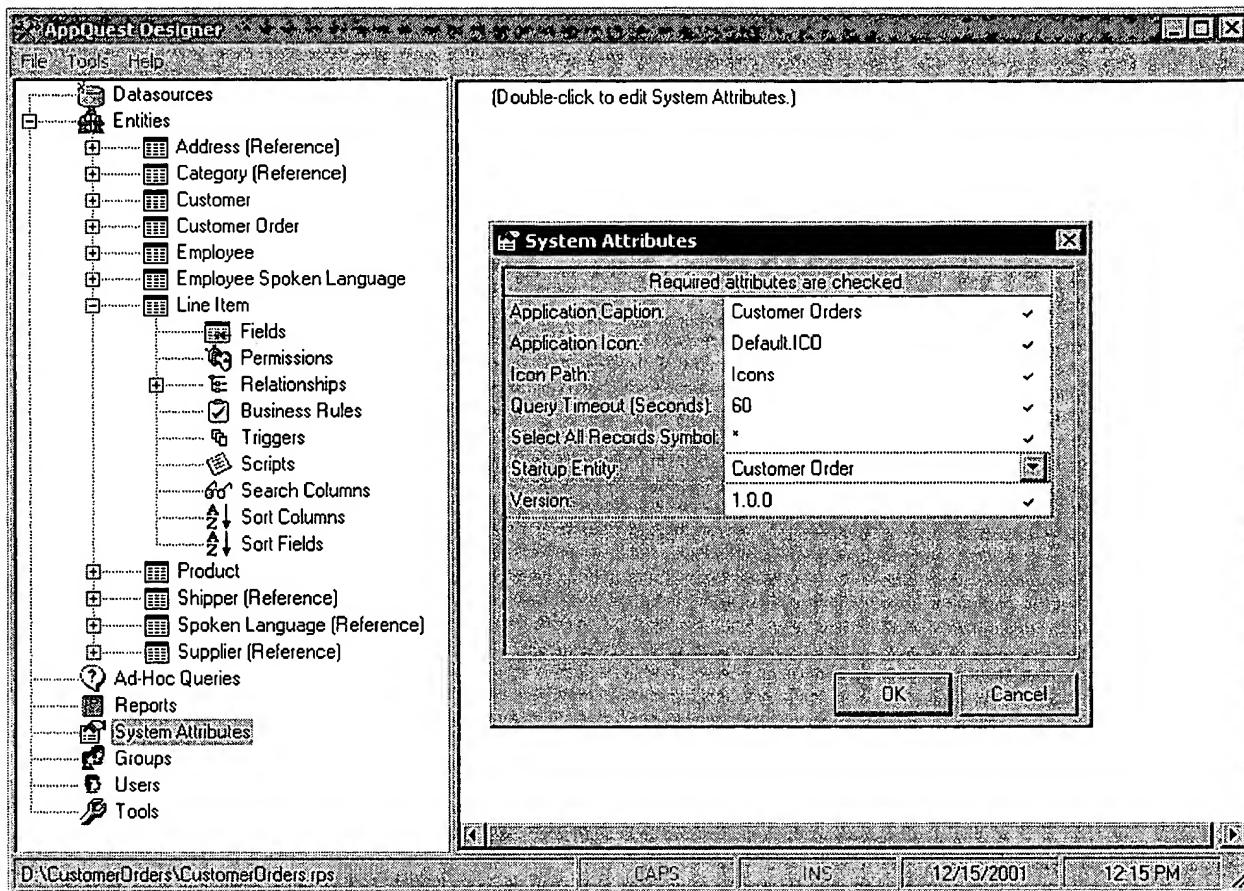


FIG. 73

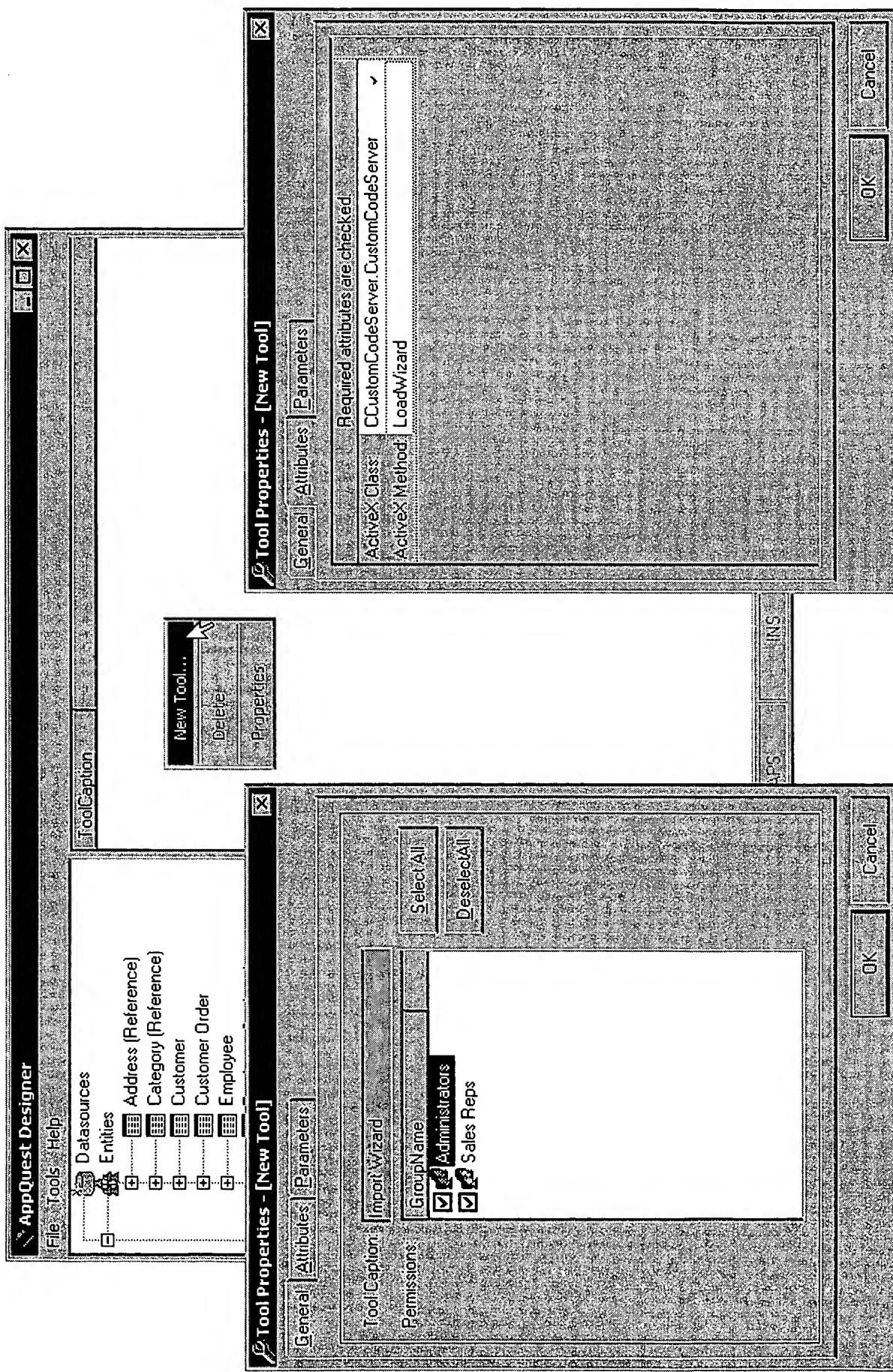
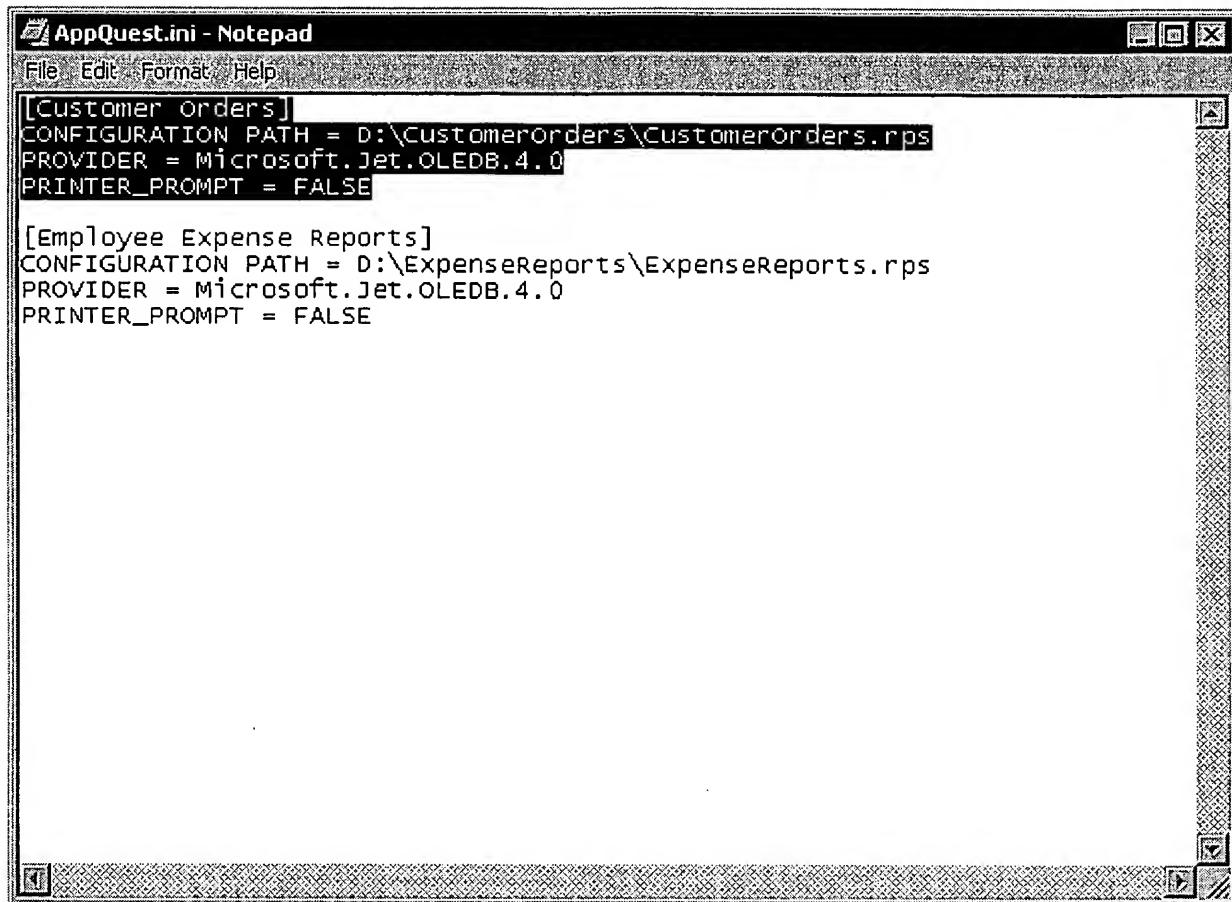


FIG. 74



2004-05-11 12:26:01

FIG. 75

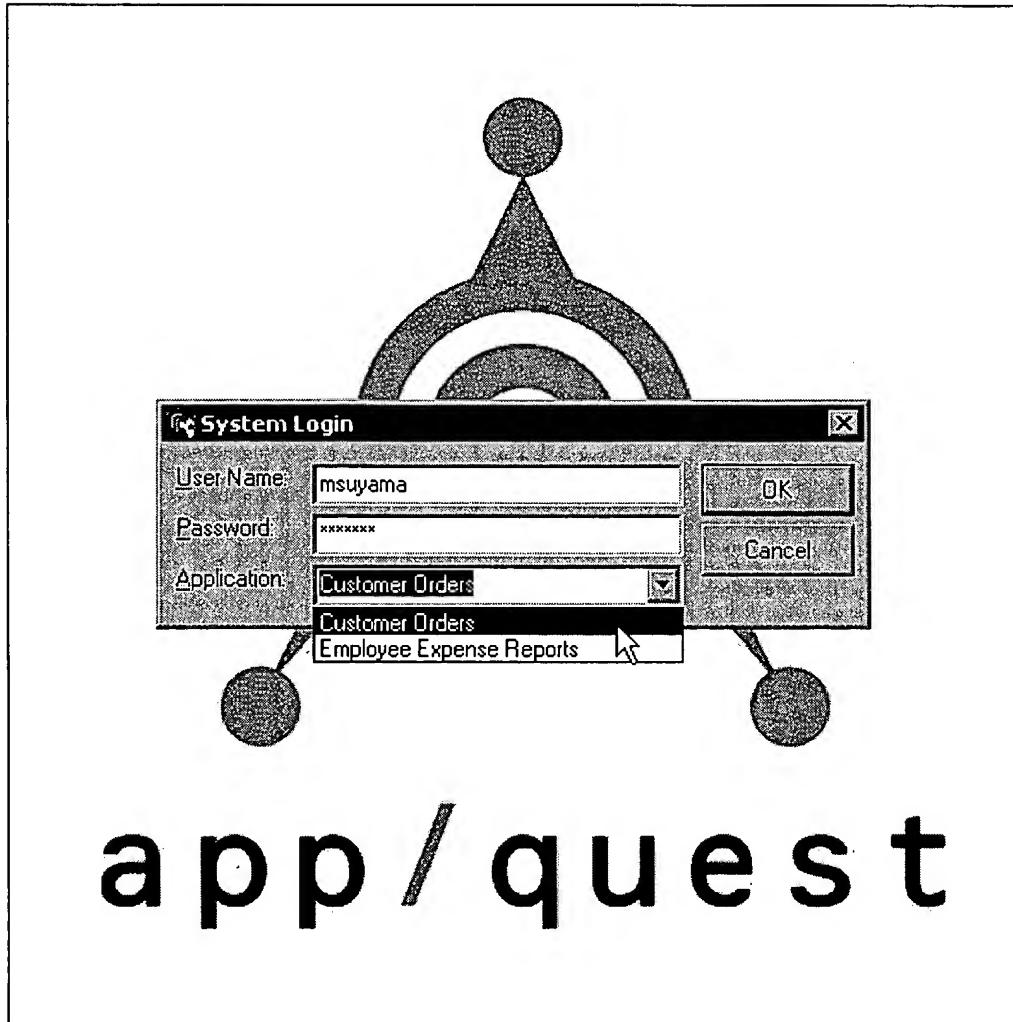


FIG. 76

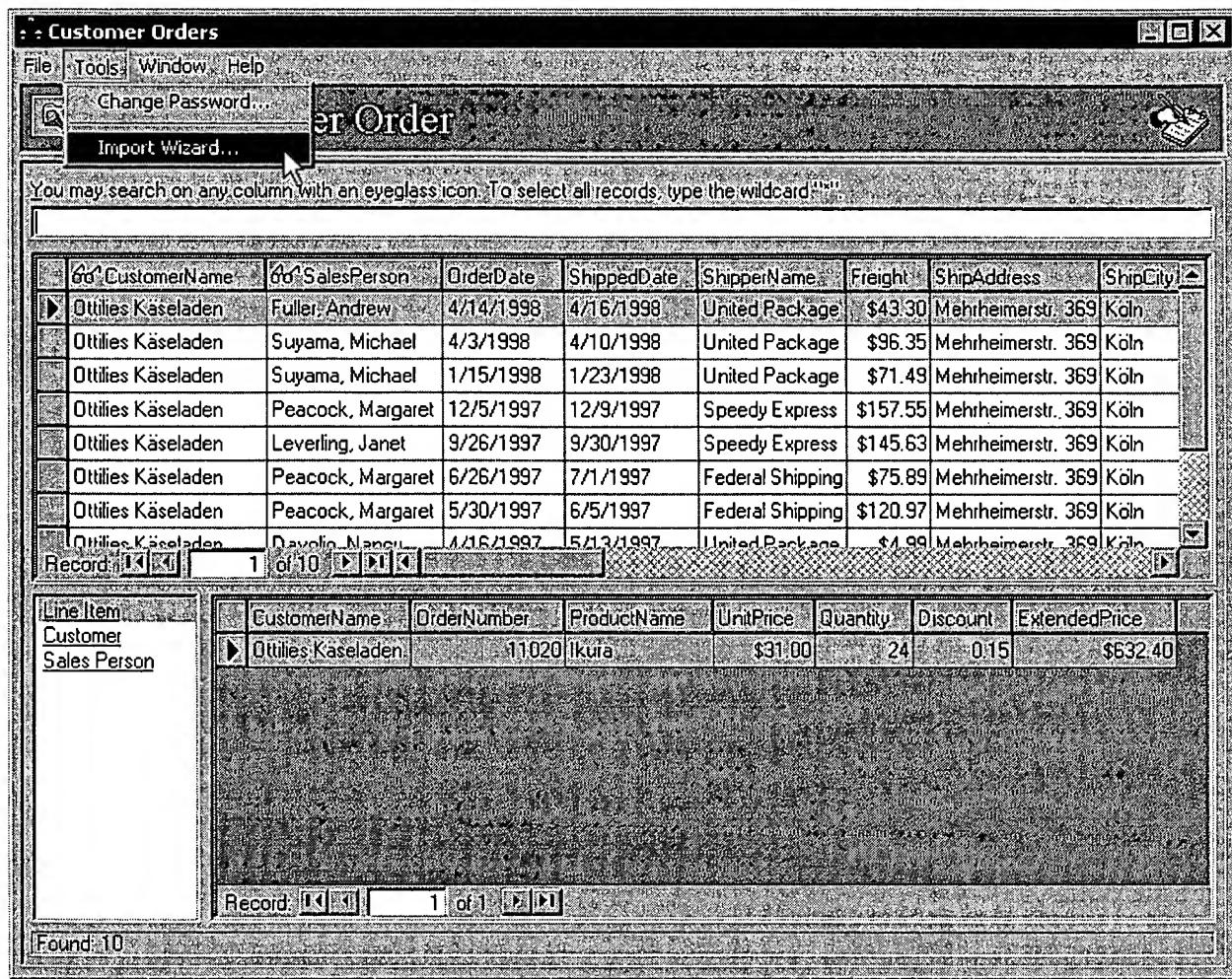


FIG. 77

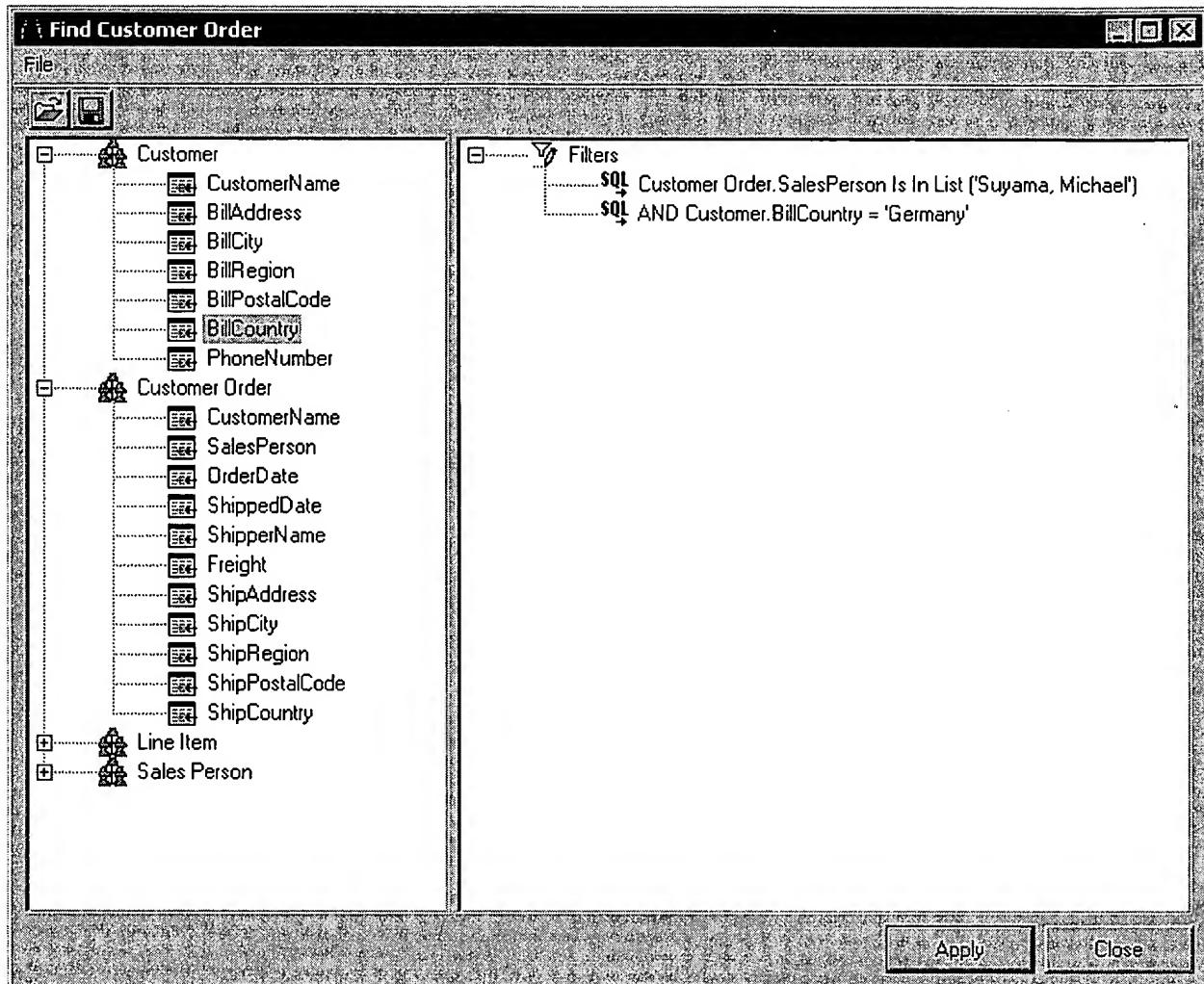


FIG. 78

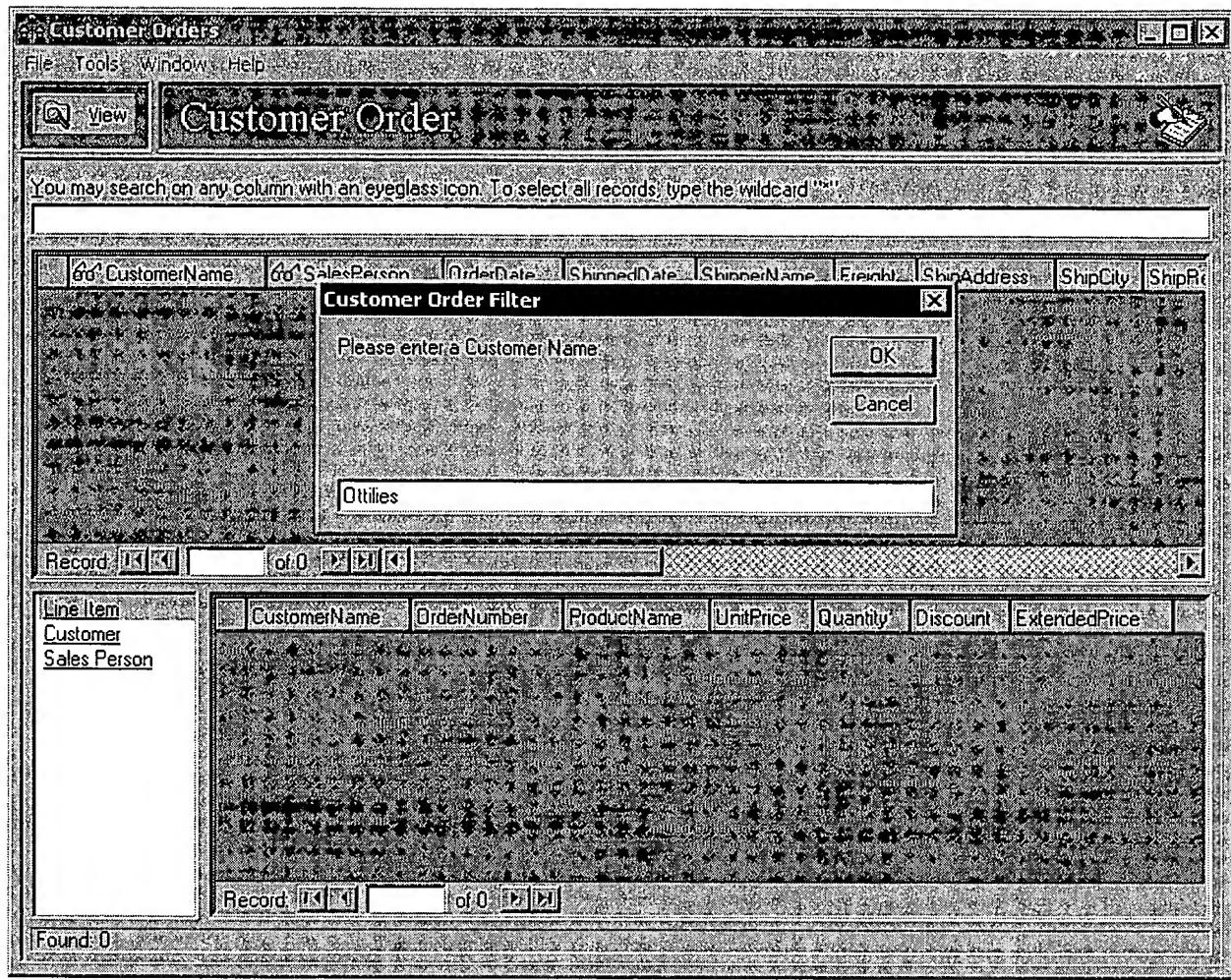


FIG. 79

Customer Order Input - [New Record]

File Edit View

General Line Item Related Info

Required fields are checked

CustomerOrderID	New Record
Customer	ACME Grocery
SalesPerson	Suyama, Michael
OrderDate	12/15/2001
ShippedDate	
Shipper	National Transport
Freight	\$33.75
ShipAddress	

Customer Order Input - [New Record]

File Edit View

General Line Item Related Info

Required fields are checked

CustomerOrderID	New Record
Customer	ACME Grocery
SalesPerson	Suyama, Michael
OrderDate	12/15/2001
ShippedDate	
Shipper	National Transport
Freight	\$33.75
ShipAddress	Address: 2810 Milton Dr. City: Albuquerque Region: NM PostalCode: 87110 Country: USA

Address

Enter your search criteria below. You may search on any field
To select all records, type the wildcard *****

Address: Albuquerque

Find Clear

OK Cancel

Address

Address: 2817 Milton Dr.

Region: USA

City: Albuquerque

PostalCode: 87110

Address: 13015 Sandia Point NE

Region: Bernallillo

City: Albuquerque

PostalCode: 87111

Address: 2810 Milton Dr.

Region: USA

City: Albuquerque

PostalCode: 87110

FIG. 80

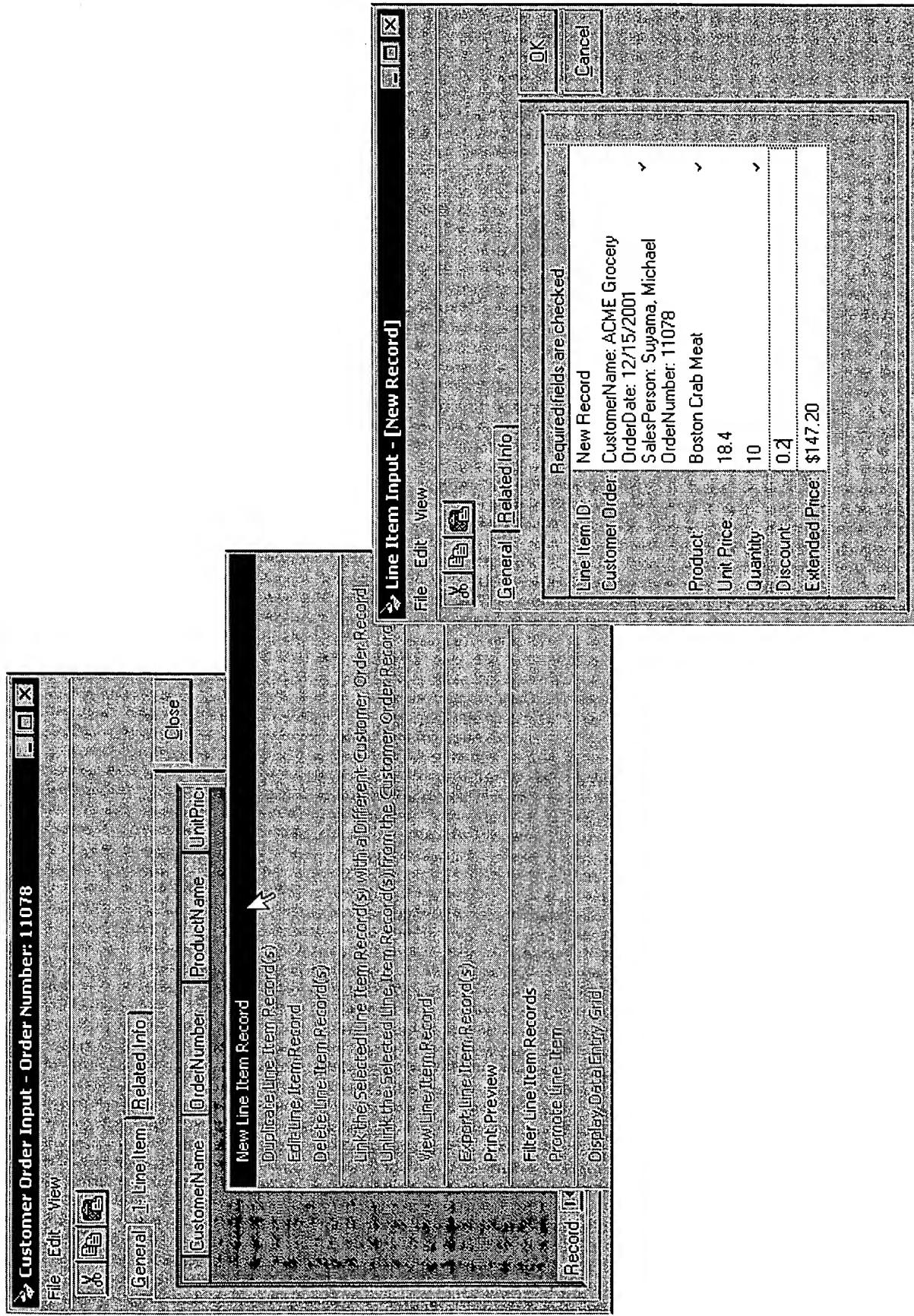


FIG. 81

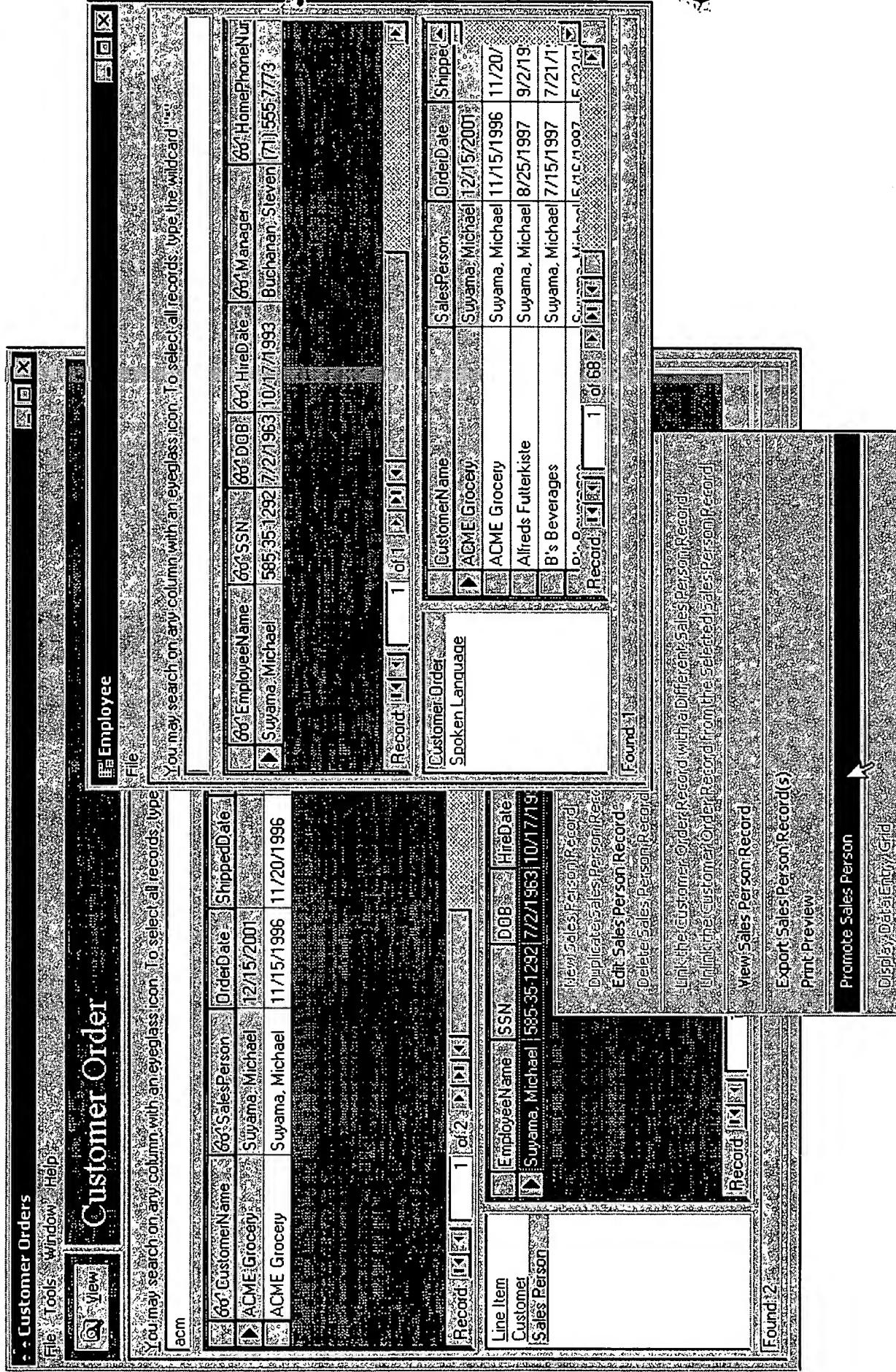


FIG. 82

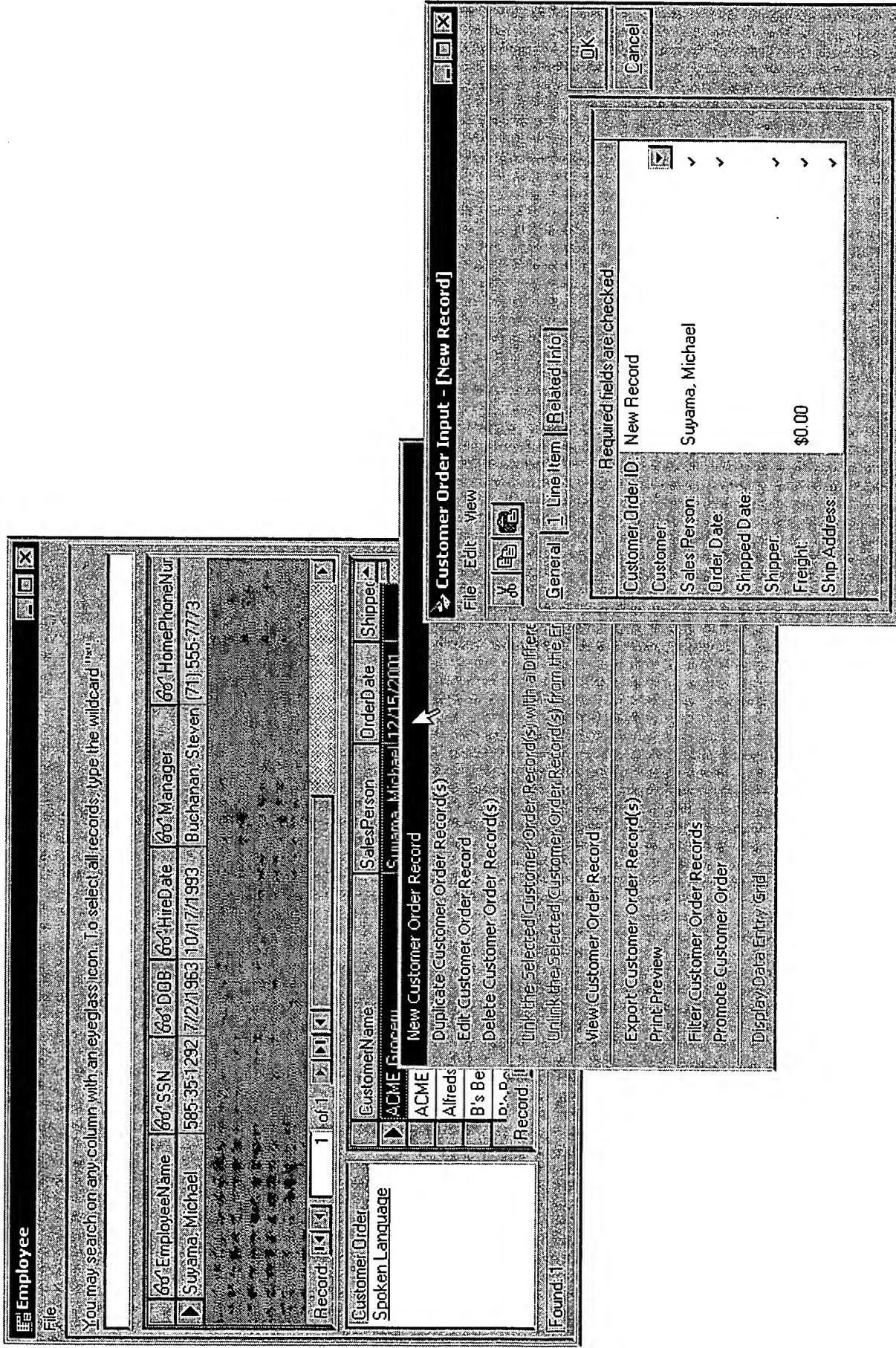


FIG. 83

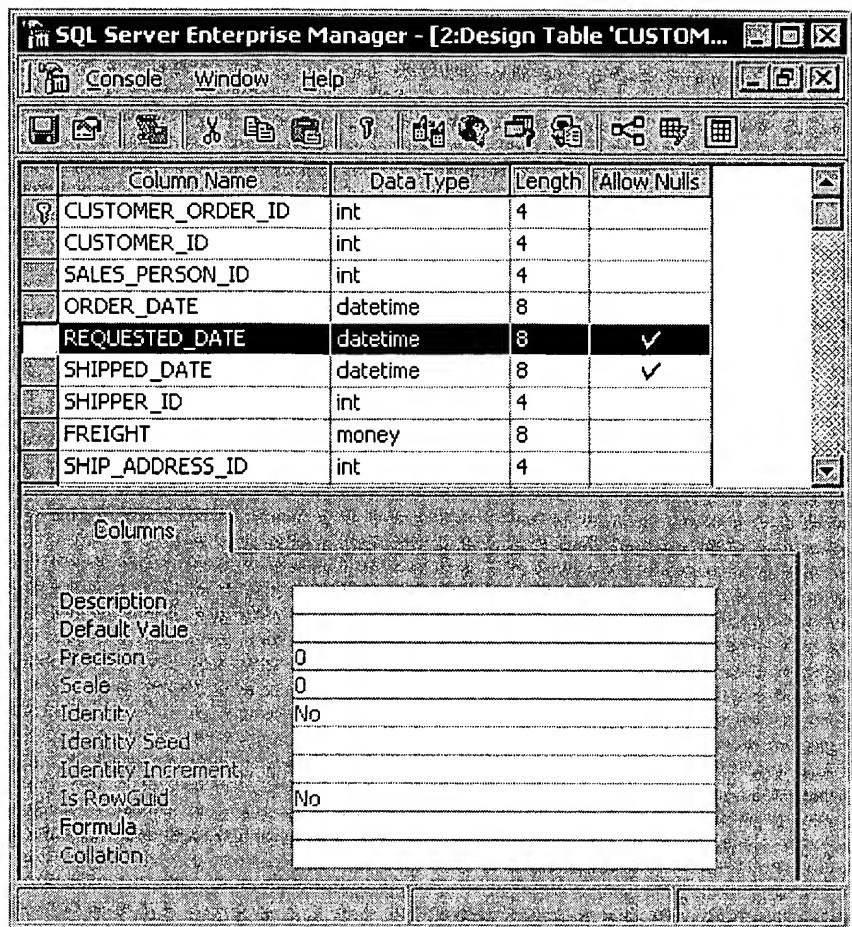


FIG. 84

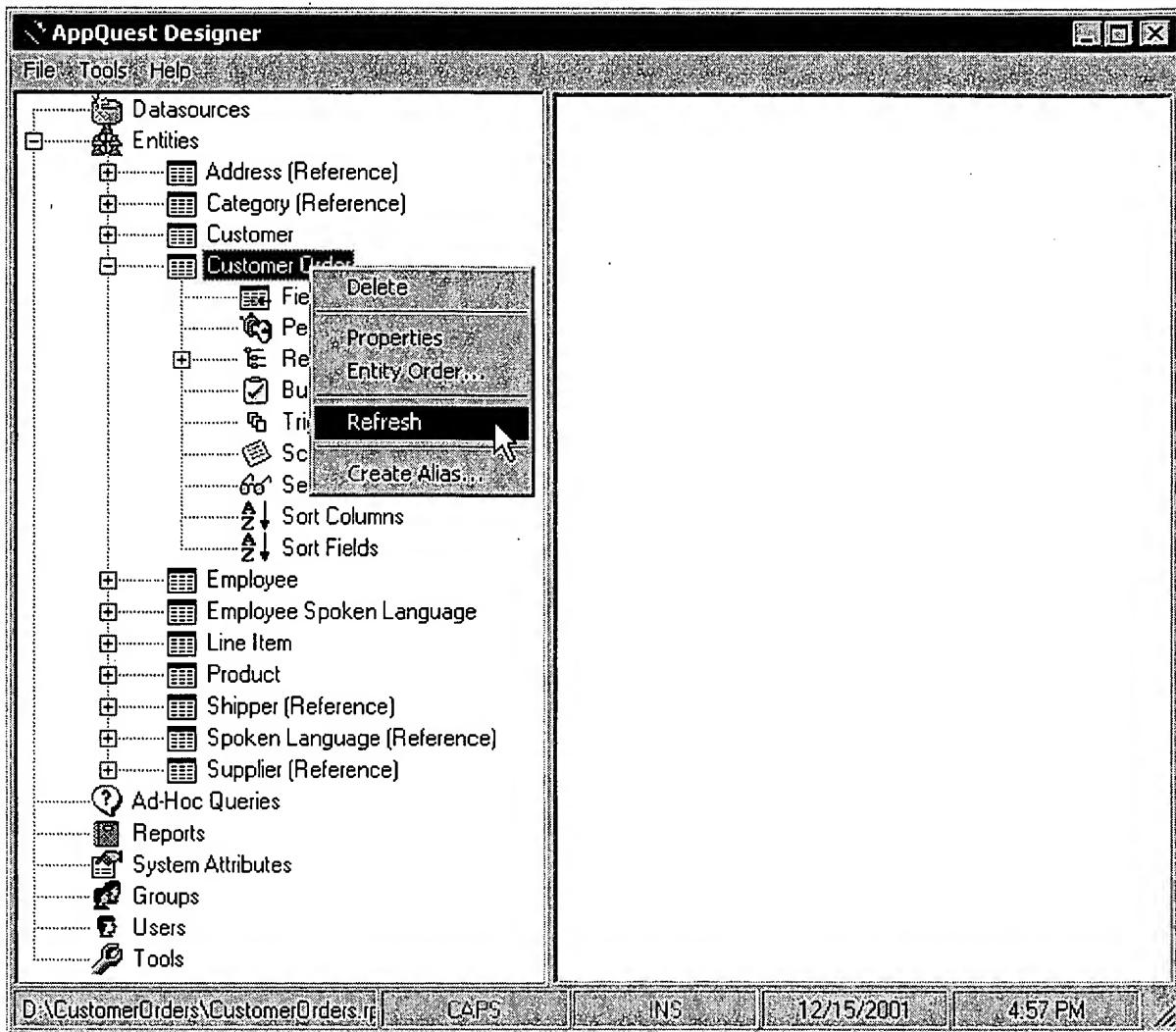


FIG. 85

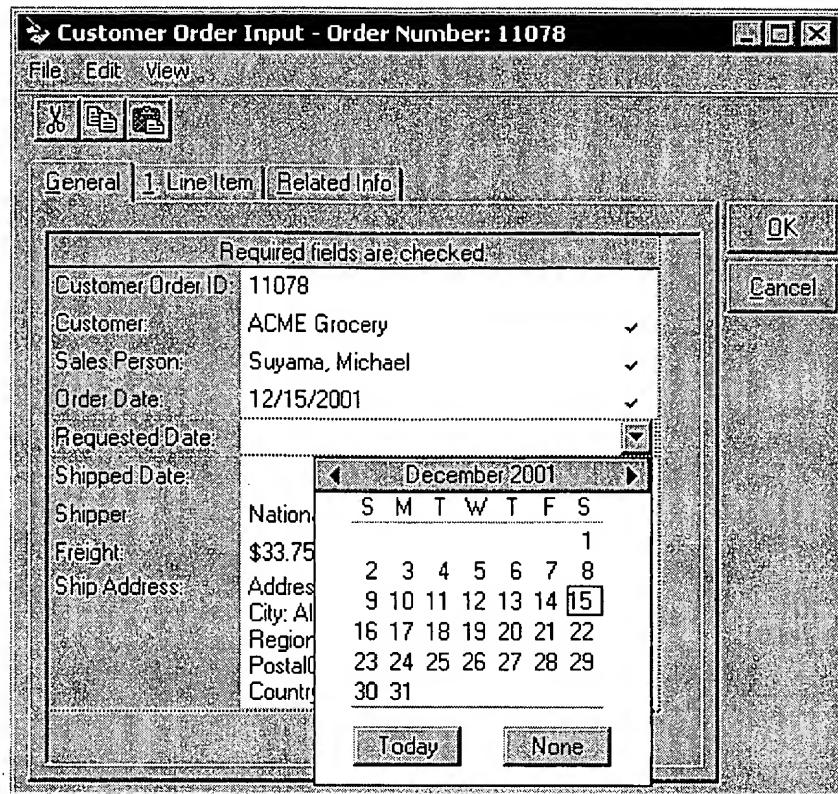


FIG. 86